

# EXCLUSIVE CONTRIBUTIONS

## Excementosis as a Cause of Facial Neuralgia.

By R. OTTOLENGUI, M.D.S., and I. NORMAN BROOMEI, D.D.S.

**Report by**  
**Dr. Ottolengui.**

On page 40 of the January number of ITEMS OF INTEREST will be found a paper from the pen of Dr. E. A. Smith, of Rome, N. Y., in which he describes an interesting case of "facial neuralgia."

Dr. Smith apparently believes that facial neuralgia may be due to secondary deposits within the pulp canals, and also to the presence of excementosis.

Dr. Smith reported that he removed the pulps from several teeth without finding pulp stones, and without alleviating the neuralgic

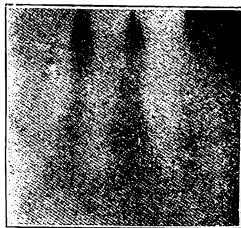


Fig. 1.



Fig. 2.

symptoms. Subsequently he extracted several teeth, on some of which he found marked examples of excementosis. After the extractions the pain was lessened, and Dr. Smith apparently believes that this proved that the excementosis had caused the pains originally.

Some weeks ago this same patient called on me in New York City for advice. He had already lost a great number of teeth, and while at the time he was not suffering from his neuralgia, still he seemed not quite convinced that the pain would not return, and he particularly desired to know whether further extractions of teeth should be made.

As the sole reason for removing the teeth was the expected presence of excementosis, and as some of the teeth which had been removed had

not been so affected, I recommended that the remaining teeth in his mouth be examined by means of the X-ray. Figs. 1 and 2 are reproductions of skiagraphs made from the lower jaw of this patient. It is to be noted that these pictures, unlike those commonly seen, show the teeth and roots white, instead of black. That is because they have been made on bromide papers in place of the films usually employed in the mouth. By this means the picture is a positive instead of a negative.

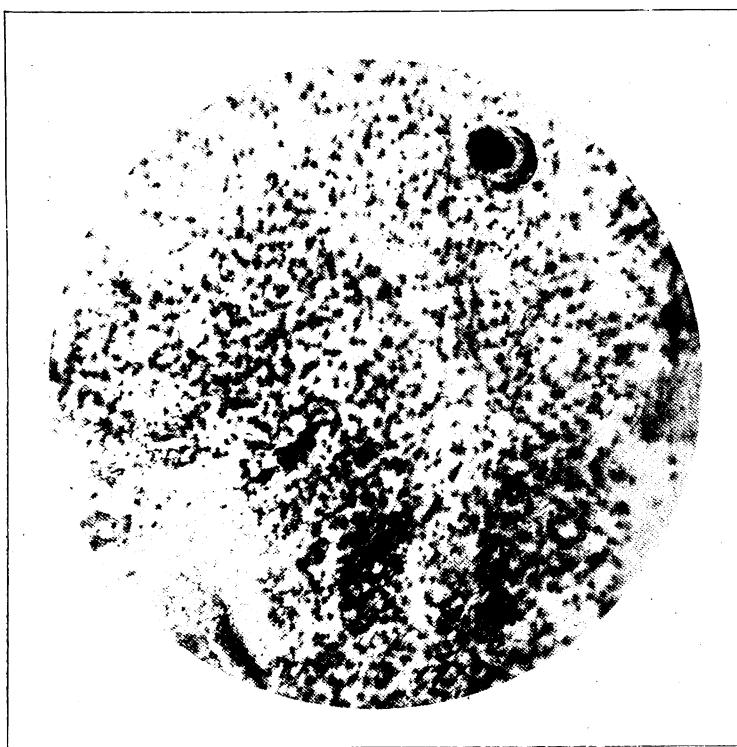


Fig. 3.—Shows abundance of cement corpuscles accounting in a measure for hypersensitivity of tissue.

By means of Fig. 1 we see that there is only a very slight excrementosis of one of the bicuspid roots. This is the mate to the tooth, in connection with which Dr. Broomell makes the subjoined report.

Fig. 2 shows that none of the teeth have enlargements of the root. The picture, however, gives quite clearly the outlines, not only of the root, but of the process in which can be seen two slight fractures

caused by the removal of the tooth sent to Dr. Broomell, which had a very great enlargement of the apex. The fact that there is no outline of the root in which the filling is seen, is interesting. This is one of the teeth which had been removed, and on which no cementosis was found. It was replaced, and being a replanted tooth, held in place by ankylosis, the demarcation of the root is not seen in the picture. Thus, by means of the skiagraphs, it was determined that further extraction was unnecessary as a means of affording relief should the neuralgic pains recur.

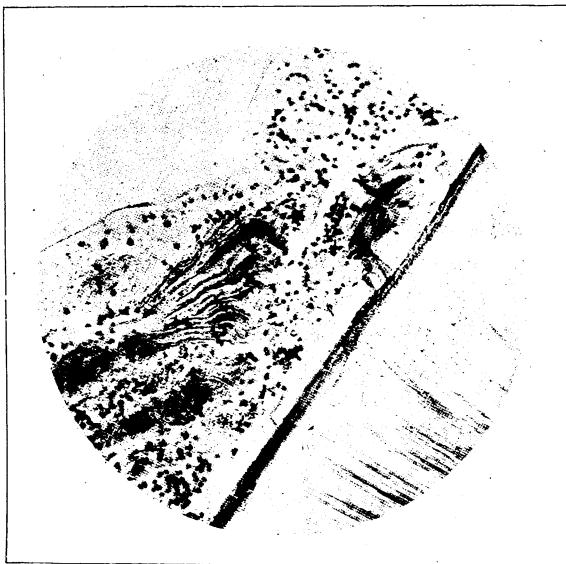


Fig. 4.—A nodule of cementum from side of root and apex.  
Note the distribution of incremental lines.

One of the teeth extracted by Dr. Smith was given to me by the patient, and I forwarded it to Dr. Broomell, who makes the following report:

**Report by  
Dr. Broomell.**

Some time ago I received a tooth recently extracted from the mouth of the patient referred to in the paper by Dr. E. A. Smith, page 40, January ITEMS OF INTEREST. I have made a careful microscopical examination of the root of this tooth, both before and after sectioning, and have the following report to offer: The first peculiarity noted, although not an uncommon condition, was the presence of four

distinct foramina, no one of which could be considered as THE foramen, either from location or size. The number of foramina had little or nothing to do with the pathology of the case, as they undoubtedly existed before the appearance of the hypertrophy. The accompanying photomicrograph shows the highly organized character of enlarged cemen-



Fig. 5.—*A*—represents normal dentine. *B*—dentine apparently of a secondary variety, but outside of normal tissue, being between hypertrophied cementum and the body of the root. *C*—hypertrophied cementum.

tum, a feature always pronounced in hypercementosis, and responsible in a measure for increased sensitiveness.

Upon more than one occasion I have taken the stand that if excentosis was ever the cause of pain, this would most likely be produced by bringing about a state of passive congestion within the pulp. The fact that the removal of the pulp does not always cause a cessation of pain may be explained by considering the conditions present about the root apex. The foramen which, normally, is present as a direct entrance to

the body of the pulp cavity, by the superadded cementum becomes a minute canal, the length and diameter of which are entirely influenced by the thickness and character of the deposit, and it is in this newly formed canal that the cause of pain is located. The nerve filaments confined in this elongated and constricted canal are practically impervious to the pulp destroying agent; therefore the devitalization of the pulp would have no effect upon them unless perhaps it might be in the way

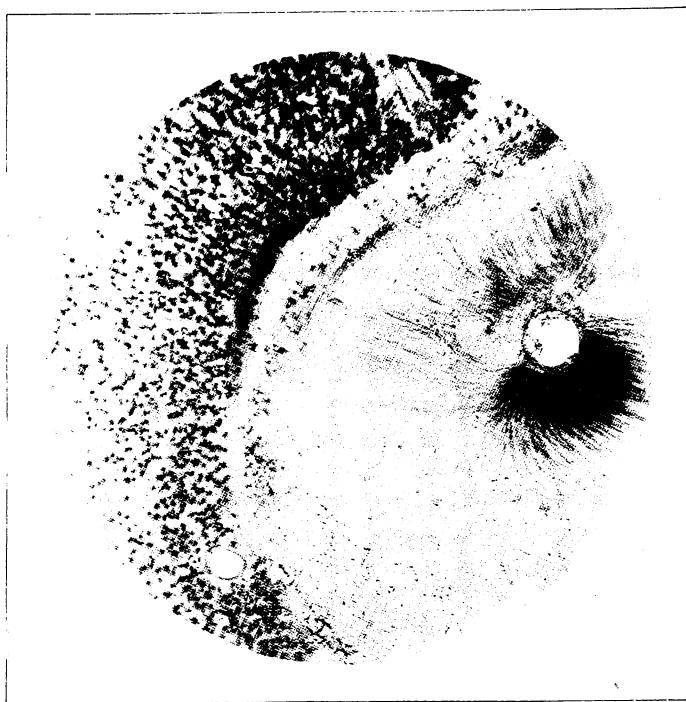


Fig. 6.—Section showing two or three foramina—one in dentine and one in the substance of the cement.

of increased irritation, aggravating rather than removing the cause of the neuritis.

I have always looked upon the joint between the teeth and alveolus as a movable rather than an immovable one, being of the arthrodial variety. If this be true, it would subject these articulations to morbid calcareous deposits just as other joints are affected, and when such conditions appear in other joints they are usually accompanied with more or less pain. In cases of chronic rheumatic arthritis, we find destructive

changes in the synovial membranes, cartilage and bone, accompanied by bony deposits resembling in every respect the primary structure. The effect of this calcareous deposit, which seldom amounts to an actual ankylosis, is to impair motion, this partial rigidity accounting in a great measure for the various uneasy sensations accompanying the affection. In the case reported by Dr. Smith, as well as in many similar cases, it might be well to search for well defined symptoms of chronic arthritis, because this disease (distinct from gout or rheumatism), although usually attacking the joints of the hands; feet, wrist, or ankle, is by no means a stranger to the maxillary region, all standard authorities at the present time including the latter as being susceptible to attacks.

I have little faith in the theory that the pain so frequently present in excrementosis is occasioned by pressure between the cementum and bone; the deposit is so gradual that the bone has ample time to get out of the way.

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### Pericemental Abscess.

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By JAMES B. HODGKIN, D.D.S., Washington, D. C.

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The editorial in ITEMS OF INTEREST relating to pericemental abscess, recalls two or more such cases in my own practice which at the time were not understood and improperly diagnosed.

The first was that of Gen. R——, a man of

**Case 1.** about sixty years of age, who had at the time most of his teeth in fair condition, but who complained of an abscess at the root of a lower central. The case looked not different from an ordinary abscess, and the teeth were so dense as to make it difficult, with the imperfect means of illumination we had then, to determine whether or no the pulp were dead.

Assuming, as one is apt to in the presence of a discharging abscess, that the pulp had died, possibly from stress, as the tooth was a good deal worn, a hole was drilled on its labial face and penetration of the pulp chamber effected. The general condition of the tooth was good so far as its gum attachments went, and there seemed no signs of pyorrhœa; still, when the drill entered the pulp chamber, there was some sensitiveness.

I forgot just the treatment, but most likely chloride of zinc, as that was something of a favorite then (this was twenty years ago), and I did the best I knew in the way of removing the pulp and filling. It did not remove or cure the abscess, however, and later the condition of

things became so bad as to necessitate the removal of the tooth, and —the patient is one of those who never come in except under stress of pain or serious trouble—he is now wearing both an upper and lower artificial denture.

But that the case was similar to the one described by Dr. Kirk seems quite plain, and had I known then as much as possibly I know now, the results might have been different for my patient.

The other case I have in mind was a patient  
**Case 2.** of the late Prof. R. B. Winder, of Baltimore, who

asked my opinion of an abscess over the root of a tooth from which he had removed a gold filling under the impression that it contained a putrid pulp, but which responded to all the tests of life. I suggested that a spot of necrosed alveolus had caused the trouble, and it turned out that this was a correct diagnosis, as, with the removal of the dead tissue, the abscess healed, the pulp being preserved alive.

No doubt the histories of many such cases might be collected, but as a rule we are too busy to make the careful diagnosis necessary.

Just now my eye falls on a paragraph in *The Dental Cosmos*, March number, 1901, page 231, article by Mitchell on "Nature of Certain Morbid Processes," in which he quotes Virchow on indirect necrosis or necrobiosis.

"We have here to deal with a gradual decay and death, a dissolution; we might almost say a necrosis. But the idea of necrosis does not offer any analogy to these processes, inasmuch as in necrosis we conceive the mortified part to be preserved, more or less, in its external form. Here, on the contrary, the part vanishes, so that we no longer perceive it in its previous form. We have no necrosed fragment at the end of the process, no mortification of the ordinary kind, but a mass in which absolutely nothing of the previously existing tissues is preserved."

Commenting on this I wish simply to say that, for some years, I have taught my classes that I saw nothing to contradict the notion that a slow dissolution of the alveolar border might occur, and this on account of the peculiar anatomy of the parts. A thin layer of bone, lying against a dense layer of cement, with only a membrane between; on the other side of the bone a gum not vascular enough to keep up any very vigorous circulation. In other words, an exceedingly thin process projected far from its blood supply and surrounded with tissues not specially adapted for keeping up its vitality—what should hinder this from slowly losing its vitality, and as slowly but certainly being carried away by absorbent vessels?

## Chloretone Solutions.

By J. E. SEARS, D.D.S., Chicago, Ill.

Having read Dr. F. B. Clemmer's report of his unfavorable experience with chloretone in the last issue of the ITEMS OF INTEREST, I wish to say that I have used chloretone for the past ten months with the very best results. I have experienced no swelling nor sloughing and very little pain when the solution of chloretone is first injected. It would seem probable that Dr. Clemmer's unfavorable results are attributable to his method of making the solution. In preparing my solution I take a new test tube and place a small quantity of the chloretone crystals and add distilled water. After boiling allow it to cool. Enough chloretone crystals are placed in the test tube so that there remains an excess undissolved after boiling. The cool saturated water solution is used for injection, observing carefully the rules for asepsis.

## Success with Chloretone.

By GEO. W. WEST, D.D.S., Chicago, Ill.

In regard to the experience of Dr. Franklin B. Clemmer, Morgan Park, Ill., as related in April number of ITEMS OF INTEREST, page 309, citing three cases with unpleasant results from use of chloretone, I wish to give my experience.

From Dr. Clemmer's letter, one would be led to believe that the inflammation and sloughing were "caused" by the aqueous solution of chloretone, whereas in my experience, in numbers of cases, where the inflammation and sloughing were present in marked degree, by packing the cavity with chloretone crystals, I have secured the best results in bringing about a healthful condition.

My experience with the drug has been very satisfactory, and covers a period of nine months' time, and I cannot believe that the unpleasant effects were caused by the chloretone alone. I wish to cite two cases to show the exact opposite effect from those mentioned by Dr. Clemmer.

**Case 1.** In case of abscessed lower molar which discharged through the cheek, just above the lower border of inferior maxillary bone, after removing

roots of offending tooth and thoroughly washing socket and fistulous tract with solution of euthymol, I packed the socket with chloretone crystals. The fistula was dilated by use of cotton tent dipped in chloretone crystals. The following day, by use of aqueous solution, I thoroughly explored for necrosed bone and removed several particles without pain. The treatment with chloretone crystals as a dressing was continued, and brought perfect recovery without a single unpleasant feature, and only a slight scar visible externally.

About three weeks ago I was called to attend

**Case 2.** a lady, age about fifty years, who, about two days previously, had a lower bicupid tooth extracted, and was suffering acute pain. Careful inquiry elicited the information that the tooth had been in a chronic abscessed condition, and the dentist, after its removal, had operated to remove necrosed bone, and cauterized the wound with nitrate of silver, but the pain had increased instead of diminishing. After washing cavity with tepid water containing witch hazel (the home remedy), I packed with chloretone crystals, introducing them on blade of knife, and tamping them down with pledget of cotton. In ten minutes the patient was almost free from pain. The treatment was continued with slight modification until complete recovery, which was very rapid and entirely satisfactory.

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### Report on Arsenol.

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By DR. D. W. BARKER, Brooklyn, N. Y.

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In the ITEMS OF INTEREST for February is published an article by Dr. C. E. Sommers, of St. Louis, extolling the virtues of arsenol. My experience with this preparation not being so satisfactory as that recorded by Dr. Sommers I herewith report the same for the purpose of bringing out the experience of others.

Lower bicupid. March 15. Arsenol applied to pulp and retain with cement. Seen next day,

**Case 1.** March 16; pulp very much alive. Removed all decay and applied second dose of arsenol retained with Gilbert's stopping. Seen the following Thursday, March 21; pulp found to be just as much alive as ever. Arsenol reapplied and left in until March 26. Condition as before. Arsenol reapplied and left until March 30. Condition as before. Arsenol reapplied and left until April 8. Pulp removed still alive, after six applications extending over twenty-four days.

**Case 2.** Upper biscupid. March 29. Applied arsenol retaining it with cement. Owing to sickness the tooth was not seen until April 13—fifteen days. Pulp found still too much alive to permit of removal. Other cases duplicating the above might be cited if correct dates had been kept. It may be possible to kill a pulp with arsenol, but I have not succeeded in doing so. It seems to be about as active as a bread pill.

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## Arsenol and its Application.

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By DR. ERNEST P. DAMERON, St. Louis, Mo.

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In the February ITEMS OF INTEREST I note an article by Dr. C. E. Sommers on arsenol which greatly interested me, as I have used this preparation for the last six months with the most gratifying results. The cases, as presented by Dr. Sommers are typical and conform in every respect with my own observations.

Success with arsenol, or, in fact any other arsenical preparation, is based on scientific principles which should be closely observed. Whenever we apply arsenious acid within the tooth cavity for the purpose of devitalizing the pulp, we depend, in our success with the preparation, directly upon absorption, a property manifested by every living tissue. Our aim, when applying arsenious acid, should therefore be to preserve, or rather maintain, the property of absorption of the drug by the pulp. I mention this because it is common practice to apply carbolic acid or some other coagulant of albumen (escharotic) not only when preparing a cavity for the application of arsenious acid, but also directly to the pulp in order to reduce the pain. Such practice is immediately followed by a total destruction of the living tissue to a depth limited only by the extent of action of the drug applied. As all escharotics are coagulants of albumen it necessarily follows that an insoluble sheet of albumen lies between the living pulp tissue and the arsenical preparation subsequently applied. Then we wonder why the pulp successfully resists five or six applications of arsenious acid.

The method which I have pursued in preparing a sensitive cavity for the application of arsenious acid has always been, after having at first applied the rubber dam, to apply any of the numerous non-coagulant anodynes on hand, such as cocaine, oil of cloves, etc., before proceeding to excavate a sensitive tooth-cavity. By above procedure we are enabled not only to properly prepare a sensitive tooth-cavity for

the application of arsenious acid, but also to maintain in the pulp the property of readily absorbing the drug applied.

In conclusion, I will state that in arsenol, as manufactured, we have an arsenious acid in a state ready for immediate absorption by the living tissue. The immense advantages of arsenol over any other arsenical preparation lies, as confirmed by many fellow-practitioners with whom I have spoken on this particular point, not only in its quick and decisive action, but also in the painless manner in which the dreaded operation is accomplished.

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### An Interesting Case.

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By W. H. ARNOLD, D.D.S., Franklin, Ky.

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On January 15 of the present year, a lady presented herself, seemingly in great distress, and not very sanguine over the diagnosis of prominent physicians and dental surgeons in regard to an edentulous inferior maxilla with which she was suffering very intensely. She was wearing a lower denture, the teeth having been extracted years before.

My associate, Dr. S. J. Martin, was first to examine the jaw, and was told that at two different times professional brethren in a neighboring city had gone into the bone in the locality with engine burs and drills, attempting to remove what they had pronounced to be either dead bone tissue, or some sort of tumor.

The soft tissue over the affected spot did not seem very sensitive, the only external and visible signs of any trouble being the cicatrix of a former operator's knife.

Dr. Martin at once pronounced it a piece of tooth that was causing the trouble, and insisted that he could remove it easily. The lady somewhat reluctantly allowed him to proceed, and after thoroughly obtunding the overlying gum tissue, he used the lancet freely; then using a root forceps loosened the apical third of a second bicuspid, and with the aid of an elevator it was removed.

It is needless to add that the good lady was very profuse in her praise of the man who had relieved her both physically and mentally, and went her way rejoicing.



## The Use of Metals, Alloys and Solders in Crown and Bridge-work.\*

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By HART J. GOSLEE, D.D.S., Chicago, Ill.

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### II.

Symbol and Fusing Point of Metals Used. Noble and Base Metals. Chemical and Physical Properties: Chemical Action, Color, Odor and Taste, Fusibility, Malleability, Ductility, Tenacity. Physical Processes: Soldering, Welding, Annealing, Tempering, Alloying, Troy Weight. Consideration of the Metals: Gold, Karat, Platinum, Iridium. Alloys: Alloys of Gold, Coin Gold, Gold and Platinum, Platinized Gold. Solders: Platinum Solder, Gold Solders, Compounding Solders, Brass, Dorrance's Alloy, Silver Solder, German Silver, Fusible Alloys, Soft Solder, Refining Gold, Etc.

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One of the first essential duties incident to the successful execution of any line of work in art or mechanics is a thorough practical knowledge of the materials used; hence, in the construction and application of crown and bridge work, wherein the use and manipulation of the metals and their combinations forms such an important feature, it is materially necessary that the dentist should be acquainted with their characteristics, physical properties and methods of manipulation.

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This is imperative only that he may the better understand their application, for it no longer becomes necessary for him to be an expert metallurgist, to refine or alloy, prepare or roll his plate material, or to combine and make his solders, alloys, etc., since the manufacturers and supply houses now furnish them in all grades desired; yet a practical knowledge of the methods and detail of manipulating them serves to cultivate and make possible their more skilful application.

Of the fifty-two metallic elements known to, and so classified in, chemistry, but a few of them in their metallic form are used in the mechanics and arts pertaining to dentistry; hence, in this connection it is only necessary to refer to or consider those the physical properties and characteristics of which are of common use and application for practical purposes, and which are contained in the following table:

Name.	Symbol.	Fusing Point.	
		Fah.	Cent.
1. Gold.	Au.	2016	1102
2. Platinum.	Pt.	3632	2000
3. Iridium.	Ir.	More refractory than Pt.	
4. Copper.	Cu.	1996	1091
5. Silver.	Ag.	1873	1023
6. Zinc.	Zn.	773	412
7. Lead.	Pb.	617	326
8. Tin.	Sn.	442	228
9. Bismuth.	Bi.	507	264
10. Cadmium.	Cd.	442	228
11. Antimony.	Sb.	842	450
12. Aluminum.	Al.	1292	700
13. Iron.	Fe.	3000	1600
14. Nickel.	Ni.	3000	1600

### Classification.

**Noble and Base Metals.** Metallurgy divides the metals into two groups known as the *noble* and the *base*, so classified because of their affinity for and property of combining with oxygen.

The former, having less affinity, do not so readily combine with it by absorption from the atmosphere, and are more easily separated from its combination when subjected to heat; while the latter, having a greater

affinity, and absorbing it more readily, are separated with much more difficulty because their compounds are not decomposed by heat alone.

#### Noble Metals.

Gold.  
Silver.  
Platinum.  
Iridium.

#### Base Metals.

Copper.	Cadmium.
Tin.	Antimony.
Zinc.	Aluminum.
Lead.	Iron.
Bismuth.	Nickel.

### **Chemical and Physical Properties.**

While all metals possess distinct individual properties characteristic of themselves, it becomes necessary for us to consider only those of such practical importance as render them useful and applicable to our purposes.

While all metals are more or less susceptible

**Chemical Action.** to the action of the secretions of the mouth, gold and platinum are the least so, and of these two platinum always withstands this influence and retains its color much better than gold, which is due mainly to the fact that platinum is commonly used in the pure state, and gold in the alloyed state.

Each metal possesses a characteristic color,

**Color.** varying from the grayish-white of silver and platinum to the muddy blue of lead; and from the rich bright yellow gold to the dark red of copper; each of which is always modified more or less by alloying.

Gold and platinum, however, possess a metallic luster and colors which are in contrast more pleasing to the eye, and more in harmony with surroundings, and which are the least susceptible to change by the chemical action of the secretions.

These properties are possessed by most metals

**Odor and Taste.** to such an infinitesimal extent that it is almost unnecessary to mention them. Copper and zinc, however, have the most definite metallic odor and taste, but as this is apparent only when they are subjected to a temperature higher than that of the body, and they are used only for the purpose of alloying, the characteristic is of no especial importance.

All metals are capable of being reduced to a

**Fusibility.** liquid state under the influence of heat, but the melting point or degree of fusibility differs greatly, and, like the color, is modified by alloying. The practical infusibility of platinum of any thickness greatly facilitates some classes of work,

and the controlling at will of the fusing point of gold by alloying makes the assemblage of innumerable parts and the art of soldering a comparatively easy and simple matter.

This is the inherent property of a metal which

**Malleability.** admits of its being hammered or rolled into thin sheets without destroying the continuity of its surface, and permits of its easy manipulation and adaptation.

This is the property which admits of being

**Ductility.** drawn out into lengths of a small diameter, such as wire.

This is the property of molecular resistance to

**Tenacity.** tension, upon which depends the strength of the metal.

In studying the accompanying table, it will be noted that gold, while ranking first of the five principal metals most commonly used, in malleability and ductility, ranks last in tenacity, but this, of course, refers to pure gold, the tensile strength of which is greatly increased by alloying with copper, silver or platinum.

	Malleability.	Ductility.	Tenacity.
Rank I.	Gold.	Gold.	Iron.
" II.	Silver.	Silver.	Copper.
" III.	Copper.	Platinum.	Platinum.
" IV.	Platinum.	Iron.	Silver.
" V.	Iron.	Copper.	Gold.

### Physical Processes.

The physical processes which mostly concern the dentist in the manipulation of the metals to accomplish the necessary and desired physical changes are those of soldering, welding, annealing, tempering, and alloying, and a clear conception of each is of infinite importance in their use.

**Soldering.** Soldering is the process of uniting surfaces of metal by fusion or superficial alloying.

**Welding.** Welding is the process of uniting surfaces of metal by molecular attraction under heat and pressure.

**Annealing.** Annealing is the process of softening or securing increased malleability, and as all metals expand

under the influence of heat, they in turn become softened because of the separation of the molecules produced by this expansion.

To accomplish this, they should be slowly heated to a cherry-red

and allowed to cool gradually, though plunging gold into water or alcohol does not interfere with, and the latter seems to even increase, its softness, while aluminum, fusing at a cherry-red heat, is best annealed by coating each surface with oil, then igniting same and allowing it to burn off.

**Tempering.** Tempering is the process of hardening. In gold, platinum, silver, copper, etc., it obtains as the result of manipulation and consecutive working, due to a molecular condensation; while in iron containing carbon (steel) sudden thermal changes from various degrees of heat produce hardness in proportion to the quantity of carbon present, and the manner and method of cooling; while in some alloys the reverse condition obtains.

The accompanying table is indicative of the heat and color necessary in tempering the various kinds of instruments used. (Essig: Am Textbook, Pros. Dent., pp. 131.)

Temperature.	Color.	Use.
430 to 450 Fah.	Light yellow.	Enamel chisels.
470 Fah.	Med. "	Excavators.
490 Fah.	Brown "	Pluggers.
510 Fah.	" purple.	Saws, etc.
520 Fah.	Purple.	Wood-cutting tools.
530 to 570 Fah.	Blue.	Clamps, etc., when elasticity is desired.

**Alloying.** As alloys are a combination of two or more metals, alloying is, of course, the process of combining metals, and is of material significance because so few are now used in their pure state. Most metals enter freely into combination with others, the alloy resulting frequently possessing characteristics entirely different from those of any one of the component parts.

They always fuse lower than the highest fusing, and often lower than the most easily fusible, and in compounding them the least fusible should usually be melted first in a clean crucible, and the others added in relation to and in accordance with their fusibility, after first carefully weighing out the proper proportions.

Alloys of gold, copper and silver can be melted and incorporated almost simultaneously with comparative ease, while those containing platinum or zinc are more difficult. The former is usually added by feeding it into the molten mass in thin, ribbon or foil form, while the latter is best incorporated in the shape of brass or some other alloy of known formula, because of the rapid volatilization of the metal. When zinc is to be added in the pure state, the proper quantity should be

weighed, broken into small pieces and each piece coated with a film of paraffin or wax, then quickly carried into the molten mass with pliers.

In this work it is necessary that one should be familiar with the table of weight used for the purpose.

#### Troy Weight.

24 grains (gr.)	= 1 pennyweight (dwt.).
20 pennyweights (dwt.)	= 1 ounce (oz.).
12 ounces (oz.)	= 1 pound (lb.).

#### Scale.

lb.	oz.	dwt.	gr.
1	= 12	= 240	= 5760
		1	= 20 = 480
			1 = 24

### Consideration of the Metals.

**Gold.** The color, malleability, compatibility, slight susceptibility to the chemical influences of the secretions, and other qualities possessed by gold make it easily the nearest approach to the ideal for universal use, and while the higher artistic and esthetic tendency should always be to avoid its conspicuous display in the mouth as much as possible, its sphere of usefulness is unlimited.

Owing to its extreme softness in the pure or unalloyed state, however, it must be combined with other metals which will impart, to a desired degree, the stiffness and strength necessary to withstand the stress and wear imposed, without appreciably affecting its other qualities, and the ease with which it may be thus alloyed greatly enhances its value.

In prosthetics the use of gold in the pure form is necessarily limited, being usually confined to work where a perfect adaptation is indicated, such as backings for porcelain facings, individual bands, etc., where it is to be afterward reinforced, and also as a solder for platinum work.

**Karat.** In alloying gold the term karat is applied to the degree of fineness, and designates the proportion of pure gold to the ratio of 24 parts. Thus 24 K. is virgin pure, while 18 K. is composed of 18 parts of gold and 6 of alloy.

**Platinum.** This metal is rapidly acquiring an extensive sphere of usefulness in dental art, and because of its many admirable physical properties is second only to gold. Those of malleability and practical infusibility render its manipulation more or less easy, and have made possible the success of porcelain work in the various phases of its present application; and it withstands the chemical action of the secretions so much better than gold as to rank first in compatibility with the tissues, which take most kindly to it. It is also used extensively in alloying gold to which it imparts special properties.

**Tridium.** The use of this metal, the physical properties of which resemble, but are more refractory than platinum, is confined to alloying with the latter, the combination forming a tougher, harder metal, such as is indicated in post material for dowel crowns and other instances requiring more than ordinary strength.

### Alloys.

**Alloys of Gold.** For the purpose of reducing the fineness and increasing the strength of gold, copper and silver are mainly used as the alloy, usually in the proportion of two parts of copper to one of silver. The former imparts hardness and elasticity; and the latter pliability and strength, together with a preservation of the original color which copper alone would change, except where the desired fineness of the gold after alloying would not admit of sufficient proportions of same to possess the requisite strength, when platinum is added in small proportions to secure this result.

For crown and bridge work, where strength and good color should be combined and are prerequisites, the gold most generally used to the best advantage is of about 22 K. fineness, which is necessary to resist or secure immunity from the chemical action of the secretions, retain its color and luster and withstand the stress; and is used in plate varying from 28 to 30 U. S. Standard Gauge.

The following are three common formulæ used for this purpose:

No. 1.	22 K.	No. 2.	21.6 K.	No. 3.	21.6 K.
Pure gold,	22 dwt.	Pure gold,	90 parts.	Coin gold,	50 parts.
" copper,	1 "	" copper,	5 "	Pure "	45 "
" silver,	18 gr.	" silver,	5 "	" silver,	5 "
Platinum,	6 gr.				

The United States coinage, gold, 90; copper,

**Coin Gold.** 10, was for many years the means of furnishing plate which was used exclusively, but which is not employed so extensively now because of the extreme hardness of gold alloyed with copper alone, and of the objectionable reddish color, which is not so pleasing to the eye, especially when contrasted by proximity with the bright yellow of a pure gold filling. It may be used to good advantage, however, in combination with pure gold and silver in proper proportions, because of the definite knowledge of the proportion of copper contained.

**Gold and Platinum.** This alloy is indicated wherever additional strength and springy elasticity are desired, such as clasps, and for stiffening the work over parts which will be subjected to more than ordinary stress, which property the addition of platinum, one part in 24, imparts to the alloy. The following formula is used for the purpose:

Pure gold,	20 parts.
Pure copper,	2 "
Pure silver,	1 part.
Platinum,	1 "

**Platinized Gold.** This is a form of plate made by fusing pure gold over one surface of platinum, which upon being passed through the rollers then presents a smooth, unbroken surface of each metal. It is much used in gold work where infusibility seems desirable, and the presentation of a surface of gold preferable to that of platinum. It is also frequently useful as a backing for porcelain facings because of the advantage of controlling or preserving the color by placing next to the porcelain whichever surface may cause the least, or produce the most desirable, change.

### Solders.

**Platinum Solder.** The advent of porcelain work and the use of high fusing "bodies" has created a demand for a solder more infusible than pure gold, which was previously used for the purpose, in order that joints so made would not be affected by the high degree of heat necessary to fuse or vitrify the body.

If there is absolute contact of the parts to be united, pure gold can be successfully used, because if thoroughly and sufficiently fused, it becomes an integral part of the platinum by alloying with it; but in extensive work platinum solders are an advantage because of overcoming the possibility of a change in the relation of the parts, caused by the shrinkage of the porcelain, which is considerable.

Such solders are now prepared for the purpose, ranging from 10 to 40 per cent of platinum in combination with gold, but less than a 15 per cent is of no advantage, and more than 25 per cent is unnecessary. They may be easily compounded by thoroughly fusing the gold and then feeding into the molten mass the desired proportion of platinum in foil or ribbon form, after which it should be hammered out and remelted several times to insure a thorough admixture.

These are alloys of gold so compounded as to

**Gold Solders.** fuse slightly lower than plate gold of the same fineness or karat; should be composed of the same metals to preserve a close resemblance in color, and differ only in the incorporation of a metal which will reduce the fusing point and impart flowing properties. Thus a 20 K. solder, for instance, should fuse readily on plate of the same K., otherwise it would not be a solder in the sense of the meaning.

Zinc is mostly used for the purpose of reducing the fusibility and imparting the requisite flowing properties, but should not be in proportion more than 1½ to 2 parts in 24; because if in greater quantity the alloy would be rendered brittle, the strength thus diminished, and the susceptibility to chemical influences when exposed to the action of the secretions increased. Solder of a lower K. than is absolutely necessary should never be used, because the lower the K., the greater the affinity for oxidation and the susceptibility to chemical action; and in consequence the seam of union and the surface exposed are always rendered more or less conspicuous; hence it is desirable to begin with as high a karat as possible, so that subsequent solderings may be made with those of a degree of fineness which will aid in precluding this tendency. And as the grades which are prepared for our use invariably run lower than the karat stamp upon them, those of so-called 16 and 14 karat have but a very limited sphere of usefulness.

The following formulæ give the average composition of the various grades of dental solders:

	22 K. Solder.	18 K. Solder.
Pure gold,	22 dwt.	Pure gold,
Brass,	2 "	18 dwt. " silver,
Coin Solder.		3 " " copper,
Coin gold,	5 dwt.	1 " "
Brass,	1 "	Brass,
		2 "
	20 K. Solder.	16 K. Solder.
Pure gold,	20 dwt.	Pure gold,
Dorrance's alloy,	4 "	11 dwt., 12 gr. " silver,
		3 " " copper,
		1 " 12 gr. " zinc,
		12 gr.

## 14 K. Solder.

Pure gold,	14 dwt.
" silver,	5 "
" copper,	3 " 12 gr.
" zinc,	1 " 12 gr.

As most of the scrap gold must of necessity

**Compounding Solders.** be of uniform karat or degree of fineness for the reasons previously mentioned, and because of the ease of securing the various karats of plate and solder by the dentist, it is scarcely necessary to observe or be familiar with the method of ascertaining and computing the fineness of gold to any extent, but as it may often be desirable to compound solders it is well to know the method of reducing scrap to the various karats used.

The following simple rule will enable anyone to reduce a given quantity of scrap to any desired fineness of solder.

Multiply the weight of gold by the karat and

**Rule.** divide by the *desired* karat. The difference between the answer after dividing, and the original quantity

of gold, is the quantity of alloy necessary to be added.

**Example.** Reduce 4 dwt., 3 gr., 22 K. gold to 18 K. solder.

$$4 \text{ dwt.} + 3 \text{ gr. (original quantity)} = \text{gr. } 99.$$

$$99 \times 22 \text{ (original karat)} = 2178.$$

$$2178 \div 18 \text{ (desired karat)} = 121.$$

$$121 - 99 \text{ (dif. bet. result and orig. quantity)} = 22.$$

Ans.: 22 gr. of alloy should be added.

For this purpose the alloy should of course contain copper, silver and zinc, and may be secured in the most convenient form in the shape of known formulæ, such as brass, Dorrance's alloy, or silver solder.

This alloy is composed of copper and zinc in

**Brass.** proportions suitable for the purpose intended, usually varying from equal parts of each to 70 of copper and 30 of zinc, and owing to its close resemblance to gold in physical properties and characteristics is much used in various lines of work.

When used as an alloy for gold in compounding solders, its definite formula should of course be ascertained, and that composed of copper 50, zinc 50, is the best for the purpose.

This alloy, suggested by Dr. W. H. Dorrance,

**Dorrance's Alloy.** is used extensively in reducing gold to solders, being a combination of the three principal metals used, in good proportions, with copper in the preponderance. The following is the formula:

Copper, 6 parts.

Silver, 2 "

Zinc, 4 "

This is also an alloy of copper, silver and zinc,

**Silver Solder.** with silver in the greatest proportion, and is much used in the making of gold solders, as the alloy, as well as an economical hard solder for various lines of work where brass and German silver are used. A common formula is:

Silver, 6 parts.

Copper, 3 "

Zinc, 1 part.

This alloy is used to some extent in tempo-

**German Silver.** rary work of all kinds, such as posts for temporary crowns and bands for matrices, etc. It is composed of copper and zinc, with the addition of nickel, which increases the fusing point and gives a harder, tougher alloy.

The following formula is much used:

Copper, 50 parts.

Zinc, 30 "

Nickel, 20 "

These are alloys in which the lower fusing

**Fusible Alloys.** metals are combined, such as lead, tin, bismuth, antimony, and cadmium, and are intended for use in making dies and counterdies for swaging in crown-work, and for the purpose of obtaining models direct from plaster impressions, or from the mouldine compounds suggested by Dr. George W. Mellotte, and composed of potter's clay and glycerine. The extreme fusibility of these alloys depends to a great extent upon the proportion of bismuth incorporated, and varies accordingly. The following are formulæ of the various known alloys of this nature:

Wood's Alloy.

Bismuth, 5

Lead, 4

Tin, 2

Cadmium, 1

Fusing point, 140° F.

Newton's Alloy.

Bismuth, 8

Lead, 5

Tin, 3

Fusing point, 200° F.

Rose's Alloy.		Hodgen's Alloy.	
Bismuth,	8	Bismuth,	8
Lead,	8	Lead,	5
Tin,	3	Tin,	3
Fusing point, 174° F.		Antimony,	2
		Fusing point, 224° F.	
Mellotte's Alloy.		Ordinary Formula.	
Bismuth,	8	Bismuth,	2
Tin,	5	Tin,	1
Lead,	3	Lead,	1
Fusing point, 200° F.			
R. C. Brophy's Alloy.		Crouse's Alloy.	
Bismuth,	3	Bismuth,	8
Lead,	2½	Lead,	5
Tin,	2½	Tin,	5
Fusing point, 240° F.		Cadmium,	1
		Fusing point, 190° F.	
Molyneaux's Alloy.			
Lead,	3		
Tin,	2		
Cadmium,	2		
Bismuth,	5		
Fusing point, 140° F.			

The lower fusing of these various well-known alloys may be cast directly into plaster, gutta percha or modeling compound impressions, without waiting for them to dry out, and Dr. Grant Molyneaux recommends that such impressions should be dipped in water just before pouring with his alloy to secure the best results.

While there is probably but a very limited use  
**Soft Solder.** for soft solder, it may sometimes be indicated in temporary work. The ordinary tinner's solder is composed of equal parts of tin and lead, though any of the fusible alloys will answer the purpose equally as well.

It frequently occurs that the accumulation of  
**Refining Gold.** scrap gold in the laboratory may become so contaminated with base metals, from contact and from the file, that it could not well be used over again by melting and rolling into plate, which convenience sometimes requires, without being first subjected to some simple process of refining.

When the scrap is composed mostly of a known degree of fineness, this may be quite easily accomplished without resorting to the chemical process, by what is known as the *roasting method*.

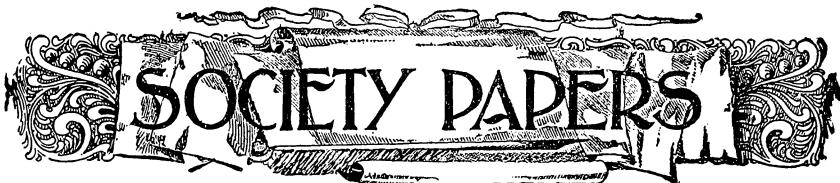
This consists of placing the scrap in a clean crucible with plenty of borax, and applying heat until a perfect fusion is reached, when small pieces of potassium nitrate (saltpetre) should be consecutively added.

This oxidizing agent furnishes usually sufficient oxygen to oxidize all base metals, which oxides are absorbed by the borax, and if kept up long enough will result in so materially refining the gold as to permit of its being annealed, rolled to the desired thickness and used over again.\*

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\*The foregoing is intended only as the essence of dental metallurgy, tintured with practical application in its relation to crown and bridge work. I have quoted freely from Mitchell's *Dental Chemistry*, Hodgen's *Dental Metallurgy*, and the *American Textbook of Prosthetic Dentistry*, edited by Dr. C. J. Essig.





# SOCIETY PAPERS

## Anæsthetics From the Dental Standpoint.

By L. GREENBAUM, M.D., D.D.S., Philadelphia, Pa.

*Read before the Central Dental Association of Northern New Jersey, March 19, 1901.*

The subject of anæsthesia has excited more than ordinary interest in late years. Men of ability have devoted themselves to the practice and study of it exclusively, so that today we consider the anæstheticist an important specialist of the healing art. Many articles have appeared from the pens of these experts presenting new agents, also suggesting improved methods in the use of the older ones, but the great majority of these articles have been written by medical men who, unfortunately, were not fully cognizant of the details, requirements and difficulties of dental practice.

In view of this fact, it has seemed best to me to present to you the conclusions which I have arrived at as a result of quite an extensive use of various agents in an active dental practice.

The tissues specially operated on in the practice of our profession are those supplied by the branches of the fifth pair of nerves, the most highly sensitive of any in the human body. In addition to this, our patients being usually in normal condition (with the exception of the condition of their teeth), with all their nerve functions in the best working order, feel pain very keenly, which is quite the reverse of the conditions usually confronting the general practitioner, whose patients, owing to disease, are in a state of impaired nerve function and display less sensitiveness, in addition to the fact that the parts operated upon are not supplied so bountifully with nerves, nor with those of a very highly sensitive character.

We inflict pain in our operations upon tooth structure, in the extraction of teeth, and in the minor surgical operations in the mouth,

The majority of these operations can be performed without inflicting suffering on the patient by exercising care and using proper instruments; on the other hand, operations on the dental pulp, extraction of roots or teeth or incisions into the structures surrounding the teeth cause an amount of pain which but few can endure. In such cases we resort to anæsthetics, local or general. Of both of these we have a long list at our disposal.

Among the general anæsthetics both chloroform and ether are out of the question in dental practice. Chloroform is too dangerous considering the position in which we are compelled to keep the patient while operating upon him. Ether, in the ordinary practice of dentistry, could not be considered, if there were no other reason than its time-robbing effects, when it is remembered how long it takes to prepare the patient, administer the agent and again restore the patient to normality.

Bromide of ethyl has been used with a great deal

**Bromide of Ethyl.** of satisfaction by our German brethren in oral work, and they recommend its use particularly in

extensive extractions. This agent is preferable to chloroform and ether, because anæsthesia with it can be induced without much loss of time, and it may be used in the dental chair. It is also comparatively safe, providing it is pure. But, unfortunately, it is very difficult to obtain it in an absolutely pure form and to retain it pure for any length of time. We are, therefore, of necessity restricted to the use of nitrous oxide.

The modus operandi in nitrous oxide cases is

**Nitrous Oxide.** thoroughly familiar to you, and it therefore is unnecessary for me to consider anything further than the recently introduced methods of using this

agent. The objections to nitrous oxide are the short duration of the anæsthesia and the cyanosis which it causes. For these reasons different modified methods of administration and mixtures of nitrous oxide with other agents have been suggested, both to prolong the anæsthesia and to do away with the cyanosis.

Among these we have the continuous administration of nitrous oxide, either by the gravity method introduced by Dr. Golden, or the placing of a peculiarly constructed inhaler in contact with the nostrils.

Without going into detail concerning these methods, which, no doubt, are familiar to you, it is sufficient for our present purpose simply to point out that by these methods the patient is compelled to inhale nitrous oxide as soon as return of consciousness induces inspiration, and thus anæsthesia is prolonged; but not a continuous, profound an-

æsthesia. There are short intervals of partial return to consciousness. It is a well-known fact that irritation of the fifth pair of nerves is more apt to induce reflex action, and that operations upon tissues supplied by those nerves require a more profound anæsthesia than parts supplied by any other nerve, with the possible exception of abdominal and cranial operations. Shock and syncope, dangers which should always be borne in mind whenever nitrous oxide is being used, are more liable to occur under such conditions. We also have the increased accumulation of CO<sub>2</sub>. Are we justified to expose our patients to such danger in view of the fact that we have other means at our command, less dangerous and less troublesome, to prevent pain being felt by our patients? Besides the increased danger to the patient, from the anæsthesia, it is not possible to do satisfactory work upon teeth, particularly those posterior to the cuspid, in the mouth of a patient under the influence of nitrous oxide, with firmly contracted muscles of the jaw and the mouth only partially opened by prop. The introduction of instruments into the mouth is liable to cause displacement of the prop, and a consequent closing of the jaws with sufficient force to break the broach or burr in use at that time.

Nitrous oxide given in the ordinary manner is a safe and useful anæsthetic, but only for operations of short duration, such as the extraction of a few teeth or roots. In the present state of dental knowledge and education amongst the laity our patients do not come to us with a great many teeth to be extracted as of yore, and any practitioner of average skill could very easily extract four or five teeth under one administration. In nitrous oxide we therefore possess the very best anæsthetic for the extraction of teeth, but for drilling, excavating or operations upon the dental pulp its use is not practical, more particularly as we have obtained with local agents far better results. Occasionally patients present themselves in whom the shutting off of oxygen may prove embarrassing or even dangerous; the use of nitrous oxide, therefore, being contraindicated. In such cases admixture of dilute oxygen (air) or pure oxygen with the anæsthetic is of great service. But as a rule the mixture of nitrous oxide with other agents has not given great satisfaction.

The addition of a few drops of chloroform is highly objectionable on account of the danger involved.

The mixture of oxygen involves the use of complicated apparatus, and is frequently followed by disagreeable after-effects, such as nausea. In many cases it is difficult to reduce the patient to the state of unconsciousness, so that this method offers no advantages over pure nitrous oxide, except in the occasional cases referred to. Aside from the actual

danger to the life of our patient in affecting the nerve centers to produce general anaesthesia, many people object to the so-called "going to sleep," and for that reason we are obliged to consider local anaesthetics which, although not as safe as nitrous oxide, yet when used understandingly are serviceable.

The pharmaceutical market has been flooded with various preparations which are supposed to be superior and preferable to the only agent which can be considered in the light of a true local anaesthetic. I refer to cocaine.

It is conceded by all authorities that cocaine is  
**Cocaine.** a powerful local anaesthetic, and produces its effect

directly upon the nerve terminals of the part to which it is applied, or into which it is injected by paralyzing its fibrils. The objection which has been raised against this agent is the frequent disagreeable effects, or poisonous effects, which are produced by it. As a result of long use of this agent, I have satisfied myself that the majority of these results are due to the improper use of the agent, or impure condition of the drug. Pure cocaine is not poisonous when used in reasonable physiological quantities, or in proper strength of solution. This must be evident to you from the fact that a quantity of coca leaves, which contains more than twice or three times the quantity of coca, when chewed and absorbed, does not produce any of the so-called poisonous effects of cocaine. But the alkaloid itself seems to be an unstable compound, perhaps due to the uncertain manner of its separation. At any rate, it has been noticed by close observers that cocaine readily undergoes disintegration, and that in these stages of formation of new bodies poisonous substances form; one, particularly, which has been designated by chemists as "hygrin."

These destructive changes are more apt to occur when the alkaloid is in a state of solution; and this fact will explain why cocaine has produced poisonous effects in the hands of many practitioners.

To obviate this, I always keep my cocaine in crystal form, or in small fragments. I prefer this to the fine powder, because it seems to me that any attenuation of it promotes disintegration. But in view of the fact that changes may occur in it even in the preparation, it is well to combine with cocaine some agent which has an antidotal effect upon it.

After trying the various combinations which have been suggested, I have found that eucalyptus and thymol offer the best means of counteracting the poisonous effects of cocaine. In addition, these agents possess antiseptic properties, and act as stimulant.

For purpose of injection I have now settled upon a one per cent solution, to which the oil of eucalyptus and thymol is added. A very good vehicle we find in the proprietary preparation, listerine, which contains eucalyptus and other essential oils, and this makes it a very nice liquid to dissolve our cocaine in.

There are a number of secret preparations on the market, which are sold as local anaesthetics, some of which are very popular, owing to their effectiveness; and recognizing the usefulness of this agent, the Professor of Chemistry at the Philadelphia Dental College has analyzed for me almost every one of the preparations on the market; and I find that the two most popular ones seem to be compounded on these lines. As a rule they are mixtures of listerine, to which is added 20 per cent. of glycerine; and this liquid is used to dissolve cocaine, four grains to the ounce. This makes a solution of about 0.9 per cent.

These solutions are being used hypodermically for the extraction of teeth and minor surgical operations upon the tissues of the mouth.

Cutting of dentine and operations upon the vital pulp can be performed with comfort by the use of more concentrated cocaine solutions forced into the dental tissues by the cataphoric current, or by means of ordinary pressure.

To diminish the sensitiveness of dentine we possess no better means than cocaine and cataphoresis, and this method would be as popular as when first introduced if it were not for the amount of time consumed, which is a serious objection in ordinary dental practice.

The readiness with which a vital pulp can be removed by means of cocaine is familiar to you all, and the method is now accepted practice. There is no case on record of which I have knowledge where cocaine used in a cavity of a tooth produced any systemic effects whatever when the tooth was properly guarded.

No other agent now in use produced similar effects except, perhaps, eucaine B, which comes nearest in its anaesthetic properties to cocaine.

In spite of this fact the number of so-called "local anaesthetics" are constantly increasing, owing to the commercialism of manufacturers and the rivalry of the different drug firms, which inspires each with a desire to possess its own preparation.

Each can point to testimonials of their efficiency, owing to the readiness with which the imaginative enthusiasm of some practitioners can be aroused, and as a result of which our waste baskets are constantly filled with literature which is being hurled at us from various sources.

It is unnecessary for us to refer to all of these agents, as giving you a history of one will illustrate all the others.

Among the most lately introduced drugs is one called "chloretone," which is not a new drug, but simply an old one under a new term. Tri-chlorbutyl alcohol has been known for many years, but was only of interest to chemists. About six years ago a Hungarian chemist introduced a solution of this drug as a local anæsthetic under the term "aneson." Laudatory articles were written on the usefulness of this agent, and the absence of all poisonous effects from it. On trial we found there were very little anæsthetic effect upon the nerve structures of the part into which it was injected.

Recently a prominent pharmaceutical concern announced to the medical world a new and wonderful agent to which they applied the term "chloretone," claiming extraordinary effects, with no poisonous qualities whatever.

About that time your representative kindly extended an invitation to me to appear before you, and in view of the newness of this drug, I determined to test it in the college clinic, where ample opportunity is afforded me. My results were negative, and I found that chloretone possessed very little, if any anæsthetic properties. As a general hypnotic it was useful, and resembled closely chloral hydrate in its effects. I was prevented from appearing before you and had no occasion to present my report.

You can imagine my surprise when a few months later, during the summer, there appeared an article in a prominent dental journal upon the marvellous effects of this agent, and stating that it possessed four times the anæsthetic power of cocaine, which, to me, seemed to be simply a repetition of the claims advanced by the manufacturers in the pamphlet sent by them broadcast.

Since then, no doubt, many of you have used chloretone and have found that in dental practice it is comparatively worthless.

This is a fair illustration of all the other preparations which are enthusiastically championed by some unstable, sanguinous practitioner, who finds some fancied charm in something new, and is eager to announce himself an advanced investigator and discoverer. The contagion smites all those not immune to dental fads, and a rush of testimonials develops. The new fad is exalted on high, and—falls over the top when something newer supervenes.

In conclusion I would simply say that as a result of a very extensive use of various agents, it is my conviction that at present we possess two agents which in dental practice are very serviceable. These are nitrous oxide and cocaine.

## Nitrous Oxide Gas, the Ideal Anesthetic. Its Discovery, Manufacture, Administration and Effects.

By DR. S. STRAITH, Bay City, Mich.

*Read before the Saginaw Valley Dental Association, April 6, 1901.*

There is probably no thought more fondly cherished in the mind of the dental patient than that of an operation properly and painlessly performed. While I do not advocate the use of the phrase, "painless dentistry," as displayed in the literature of the advertising quack, yet I believe in all laudable means to produce the end or condition which this phrase would indicate, and there is no operation performed in dentistry which insures to the operator such confidence and esteem of his patient as the realization of the above phrase applied to extracting. The number of anæsthetics which have been brought into use is legion, and the manner in which they have one by one been rejected reminds me of the story of the man who instituted a search for a crooked stick suitable for a cane.

Upon first entering the woods, he saw a branch which seemed to answer every necessary requirement; but this must have been too easy, for he tramped back and forward for hours examining branch after branch until finally he came to the one first seen upon approaching the woods and easily recognized it as the best one he had found.

This is a fair illustration of the history of nitrous oxide gas. When Dr. Horace Wells announced to the world the discovery of the anæsthetic effects of nitrous oxide gas sixty years ago, it became debtor for one of the greatest blessings ever conferred upon mankind. Dr. Wells did not live to see the ultimate victory and universal use of gas, yet he does live in a very warm corner of the hearts of millions of people to whom his great discovery has given relief.

In the early days many attempted to administer gas, but because of lack of knowledge, many unsuccessful efforts were reported. It therefore became much in disfavor and was very little employed for about ten years, when it was again brought to the front and has steadily gained in favor until it is today, and has been for nearly one-half century, considered the safest and best anæsthetic for minor surgery and the extraction of teeth.

**Manufacture of  
Nitrous Oxide Gas.**

The manufacture of nitrous oxide gas, except as it is done on a large scale by those who put it on the market in a liquid form, may be undertaken by the dentist of average ability with the hope of success, but he who does not have opportunity to give it oftener than does the average dentist, is not justified in going to the expense of procuring a suitable gas plant, and unless he can have a good gas plant he might better have none. To learn to manufacture nitrous oxide gas takes but a short time, yet to make pure gas requires the undivided attention of the operator.

The gas plant which I have is made from my own plans, somewhat modified from the Nevins gas plant, and is very complete and satisfactory. It consists of two 150-gallon gasometers, between which are a series of wash bottles and a retort. These wash bottles and retort are connected by means of rubber corks and bent glass tubes. Nitrate of ammonia is placed in the retort and subjected at first to a very low heat, gradually increasing the heat until the nitrate is all melted and boiling, when the heat is reduced so as to keep the nitrate just at boiling point. Nitrate of ammonia fuses at 225 degrees Fahr., and at 475 degrees Fahr. it is converted into  $N_2O_2$  and water. The gas and water pass from the retort into wash bottle No. 1, where the water remains and the gas passes on through the several other wash bottles containing chemicals which purify the gas, if the impurities exist, and finally into gasometer No. 1, where it remains several hours, after which it is drawn off into gasometer No. 2 and is ready for use.

The manufacture of gas may be learned in a very short time, but to learn to successfully administer it requires a much longer time and very strict attention to details.

**Administration  
of  
Nitrous Oxide Gas.**

To administer gas has become such an automatic thing with me that no doubt in describing any mode of procedure I will omit many details that might be of interest to others. My observations and practice have been more along practical than theoretical lines.

To administer gas successfully one must have, first of all, unbounded confidence in the gas, and also in his ability to give it, and if he has not these qualities, or has not the opportunity or desire to acquire them, he would better delegate its use to those who have. Any expression or action on the part of the dentist which may be understood by the patient as an indication of lack of confidence or ability will certainly add to the chances for an unsuccessful administration, subsequent dissatisfaction to the patient, and discouragement to all people over whom he

could exert any influence. While I am not a "Faith Curist," yet I firmly believe that implicit confidence or faith in the doctor has much to do with the successful treatment of disease.

There is scarcely any ailment which so completely unnerves a person as a siege of toothache, and the average patient endures his full share of it before he finally concludes to resort to extraction. When such a person comes to us for relief from long endured pain, his nervous system is at a high tension, and it at once becomes our duty to do our utmost to relieve this tension. The first request or question is about the use of an anæsthetic, and before the patient has had time to make this request we should have made our decision as to the safety of using any anæsthetic. If the patient says, "I want you to freeze my gums," I almost invariably refuse.

I have very little faith in local anæsthesia with cocaine, eucaine, or their substitutes. It is true that there have been many successful operations with cocaine and its substitutes, but the chances for a very unfavorable administration loom up so formidably before me that I am quite willing to accord to some other man all the glory and satisfaction he may find in their use.

There is another very important feature in their use to the busy dentist, and that is the time employed. If a patient presents himself for the extraction of two or more teeth, I can excuse a patient from the chair, administer gas and extract the teeth, dismiss the patient, and renew my work with the former patient in less time than would be necessary to prepare my hypodermic syringe and inject a local anæsthetic. But, above all else to me is the satisfaction of the knowledge that I am administering the safest known anæsthetic.

If we are to use any anæsthetic at all, we should have such implicit confidence in, and ability to use it, that we can at once show to our patient the folly of his fears, and satisfactorily answer his questions.

It is usually the case that the patient will have told you of all the sicknesses or ailments ever endured by him before you have a chance to ask any questions, if you so desired. If I know, either from description or appearance, that my patient is a victim of serious throat trouble, or asthma, I simply tell him he should better not take any anæsthetic; and if he insists, I absolutely refuse. To any other person I simply ask him what tooth or teeth he wishes extracted, and if in my judgment the extraction is indicated, I proceed to satisfy him to the best of my ability. If a person in the last stages of consumption, or one with serious heart lesions asks "Can I take gas?" I say, "You breathe air, do you not? Nitrous oxide gas is composed of the same elements as the air only in

different proportions." When you can assure your patient that the anæsthetic you use has been given at least 100,000 times a year in the United States alone, for the past forty or more years, and in all that time that there has been less than half a dozen deaths, and that in each of these cases there were other conditions which no doubt caused death, you are saying what cannot possibly be said of any other anæsthetic ever used.

There is no question in my mind that, as a rule, the failure to use gas is due to the lack of ability to accomplish all that is desired in the shortness of anæsthesia produced by gas. However, for my part, I prefer to use an anæsthetic in which I have implicit confidence, even if I must use it several times to accomplish the desired end. The working time under gas anæsthesia varies from twenty to fifty seconds, and one can easily extract three or four to twelve or fourteen teeth in that time, as conditions or necessity indicates.

There are many signs watched for to indicate narcosis, such as the cessation of some authorized motion, or the reflex of the eye, but these have been known to fail and are not reliable. These are all helps, but to me, the breathing and expression are sufficient tests.

As to the effects of gas little need be said. In from forty seconds to one and one-half minutes anæsthesia, lasting from thirty to fifty seconds, is produced by the deoxidation of the blood. By actual count, in many cases, in from two to three and one-half minutes from the time of the first inhalation of the gas the patient has regained complete consciousness, and in five minutes there is no feeling of discomfort from the anæsthetic.

To me nitrous oxide gas, manufactured by myself, which gives me positive assurance of its purity, is the only anæsthetic, and until some other anæsthetic makes a record which surpasses its record, I shall cling to the first born of all, nitrous oxide.

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## A Plea for the More Extensive Use of Gold as a Filling Material.

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By DR. C. F. HUGO, Washington, D. C.

*Read before the District of Columbia Dental Society, December, 1900.*

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The observer cannot but have noticed that in the last twenty-five years there has been a decline in the relative extent and to some degree in the quality of gold filling.

Let us examine this condition. That gold—aside from considerations of desirability of porcelain inlay, nearness to pulp, inability to secure dryness of cavity, extensive decay in young children's teeth, and senile cervical softening—when properly adapted to clean, strong walls, with cavity margins free from extraneous contact, is, in point of durability, cleanliness and appearance, the best filling material that can be inserted into a tooth, scarcely any one will deny. Indeed, it is the conviction of almost every dentist. This being so, why do not all act up to their convictions?

Obviously the principal reasons are, that amalgam cement and gutta percha make so much cheaper work, and that they take less time for insertion, and less exacting requirements and strain upon the operator. These reasons, in varying degrees of justifiableness, are urged, and usually by the operator, to the rejection of gold. Almost always, when the question of material arises, the patient will say: "I leave the choice to you, as you ought to know best. You are the doctor." Dread of strain, however, tediousness, trying conditions, and, let me whisper it, the lack of courage to charge what would be a compensating fee, will frequently decide against gold when the better judgment is in its favor. Then, too, at times, a perfectly sincere and defensible motive may underlie such decision. Speaking for myself, some years ago I filled with plastics many cavities in which I now would use gold, simply because I did not then feel that I could in those cases do justice to the better material.

**Crowning  
Versus  
Filling.**

Another, though a minor reason, for the decreased use of gold—as, in particularly heroic filling—is the readier resort to crowning. While this prosthetic process is in its present highly developed state a great blessing, in that it supplants extensive or unsightly amalgam or gold restorations, yet it is undoubtedly prematurely decided upon, especially in the case of bicuspids. Here crowning is sometimes only an excuse for the patient's unwillingness to sit through the trials of, or to pay for properly executed gold operations; or, it is an excuse for the operator's indisposition or inability to produce such fillings.

In defense of prompt crowning, it may be argued that if a bicuspid or molar is extensively defective, filling would be only a temporary expedient; that sooner or later crowning will become a necessity, and such being the case, why not resort to the latter and have done, once for all, with repairing the tooth?

I grant the force of this contention in many instances. There are some cases, however, where filling would answer a satisfactorily conser-

vative purpose, and yet postpone crowning, with its risks to the root. That, so far as the root is concerned, it is better for a tooth to be crowned later than earlier, is obvious. For surely, of two teeth equally good, the one that is utilized for crowning ten years later than the other, has a prospect of a longer career of usefulness.

We see, albeit less and less often as time wears on, teeth once extensively decayed restored to comfort and usefulness by filling, particularly with gold, that, after ten, fifteen or even twenty years' service, are still justifiably opposed to hiding their diminished heads under meretricious bushels of gold. It must be admitted that such work was done by masters of the craft. Yet it shows what can be done by conservative, though less radical, procedure. Further, if the older practitioners developed the ability to save and beneficially postpone in this way, is it not open to us to do likewise? With our improved resources, we should have presumptively even a better chance of success.

Now as to the deterioration in the quality of  
**Skill in Gold Filling** gold filling.

**Disappearing.** The trite saying that practice makes perfect, is of peculiar applicability to gold filling. Twenty, thirty or more years ago; that is, before the very extensive use of plastics, especially of amalgam, almost all operable cavities were filled with gold. That the constant working with the latter developed a high degree of manipulative ability, need not be asserted. That the constantly increasing proportion of plastic work since the time mentioned has tended to reduce the proficiency in gold filling, need likewise not be pointed out. In boldness, then, correctness of contour and relation, solidity and finish, our average gold work does not reach that of the generation of operators passing out.

Besides the greater comparative practice in gold filling, our immediate predecessors had a stimulus, which we of this day do not have in so great a degree. I allude to the frequent clinics of the masters in the art of gold filling. We are now stimulated by fine work in other directions. The field of the clinician has so widened that demonstrations of gold filling, heroic and otherwise, have been given an humbler place on the programmes of our meetings. This diverting of attention to other matters naturally has resulted in a slackening of interest in the once all-absorbing subject of gold filling, and as a consequence there is a less keen emulation of high example.

A certain condition—I may dignify it with the term stimulus—affecting the quantity and to some extent the quality, in the matter of details, of gold filling may receive a word in passing.

If we are compensatingly paid for our work, **Fees as an Incentive for Good Work.** our ambition is stimulated to putting forth our best efforts. If we are underpaid, the work will tend gradually to reflect the less favorable condition. In the one case we take full time with our work; in the other we are disposed to hurry. Ethically this may be wrong. But altruistic ethics and human nature have not as yet fought it out. And so long as we have not educated human nature out of our blood, and so long as we do not practice for mere amusement, reward, i. e., the fee, will be a not negligible quantity in our work. Compensating fees, then, must be numbered among the incentives to putting forth the best efforts year in and year out. On the other hand, too low fees, except in what is more or less charity work, are, if not dispiriting, at least clogging to the ambition to produce the highest type gold work.

Confining the remark to our city, I think it is a fact that the better class of dentists derive a smaller annual income for their professional work than do their brethren of the same class in Boston, New York, Philadelphia, Chicago, Denver and San Francisco.

Two reasons may be assigned: the greater relative number of practitioners here, and the greater proportion of plastic work. First, the large number of dentists—they seem “as thick as autumnal leaves that strew the brook in Vallombrosa.” Some live by their practice, some “by their practices,” brings about a general competition, active or passive, which results in placing our fees on a lower level. Secondly, this lowering of our fees makes the operator less disposed to do gold work, with all its tax upon endurance and skill, and naturally he will do plastic work, with its less exacting requirements of both himself and the patient. The consequence is a gradual public sentiment in favor of the easier and cheaper operations, which is encouraged by our assenting difference.

We should rouse ourselves, not only for the betterment of our annual income, but principally for the sake of our work as a profession. Knowing, as we do, the superior excellence of gold, we should persuade the public in its favor. We could do more work with this material than we are willing to admit, and we could take a firmer stand in the matter of compensating fees. Our patients will in time appreciate the difference between a good gold and a plastic filling; and then they will not object to paying accordingly.

Incidentally I may say that the great proportion of plastic work in the mouths of our patients sometimes makes an unfavorable impression upon our dental brethren of other cities. As an indication, in one instance, of how we of Washington are regarded, I will cite a remark made to one of my lady patients by a Chicago dentist.

The work he had done for her, for which he made a high charge—too high as she thought—was examined by one of our men who, to be noncommittal, declared that the charge was not low. When the patient, on her return, reported this to the Chicago dentist, he observed that it was not competent for any but one man in Washington to criticize his work; that he had but one peer in this city, and that was Dr. Maynard. The inference for the rest of us was not a flattering one, though I must confess that when we compare the teeth the Western man had in charge, containing as they did scarcely any fillings except gold, and these well made, with the work composed to so large an extent of plastics in the teeth we have in charge, the contumelious remark had a color of justice. And yet I am sure that there are in our city a dozen practitioners and more who can do equally as fine work as he did.

We should remember that no great reputation for operating, i. e., filling, was ever made in anything but gold work. The seeming exception, the

**A Plea for Gold Filling.** reputation of a certain great plasticist, rests not so much on his operations as upon his strenuous advocacy of plastics. Dr. Maynard, Dr. Webb, Dr. Varney, Dr. Shoemaker, and men of their class did not raise the enduring monuments by which they are known in amalgam, cement or gutta percha.

I do not wish to intimate that a dentist cannot realize with anything but gold, the true and highest beneficence of his calling, to restore to comfort and usefulness the greatest number of teeth. Far from it. But I insist that if he can save and make comfortable with gold as well as and better than with other materials, and the porportion of such teeth is greater than he practically admits, it will redound to his greater credit with his patients and with his professional brethren. Other considerations apart, does not first-class gold work attract our attention, excite our interest, command our admiration to a higher degree than does first-class plastic work? Again, do not mistake my meaning. I do not contend that every cavity is best filled with gold. What I mean is that a very much larger percentage of cavities could be treated by us with the royal metal, such work resulting in a higher grade of operations and a better reputation, with all which that implies.

From the foregoing it appears, then, that there are relatively fewer gold fillings made than formerly. First, because cheaper filling materials are supplanting gold, and, secondly, because crowning for both esthetic, cosmetic and utilitarian reasons is more readily resorted to, though frequently when judicious filling with gold would have been more conservative ultimately.

The quality of gold filling has deteriorated. First, because the operator working less with gold than formerly, i. e., working more with materials that tax manipulative proficiency less, is not so well prepared, nor so willing to do the highest type gold work; and, secondly, because there seems to be in our city a growing indisposition, and we are in a measure responsible for it, on the part of the public to pay what the painstaking practitioner would regard a compensating fee for the best gold work.

The remedy for this condition is to make more active efforts in the way of creating sentiment in favor of the better, though more exacting filling material, and then to charge more nearly compensating fees.

In conclusion, let me urge upon you as representative men of the dental profession of Washington to consider what I have presumed to say. Ask yourselves the question: "Am I doing too much plastic work? Would not my patient's teeth wear a brighter, a wholesome smile if treated with smooth, clean, tight margined gold fillings than they do with so large a proportion of discolored, rough, open margined amalgam, or wasted white fillings?"

I think, upon consideration, you will find that my plea for the more extensive use of gold as a filling material is not a passing caprice or an idle fancy.

Finally, what I have said is not in disparagement of our actual competency, but in criticism of our apparent judgment.

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## Dental Ethics.

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By DR. A. L. PLOUGH, New Orleans, La.,

*A Lecture Delivered Before the New Orleans College of Dentistry.*

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I am urged to believe that the teaching of dental ethics has been sadly overlooked in the various learned debates and discussions of the dental conventions and systems of dental education.

During the past year (1900) there appears in the entire list of dental journalism (as we find published in the bibliography of dental literature in *Dental Cosmos*) but one instance of an essay upon dental ethics, and that was "The Ethics of the Profession of Dentistry Relating to the Members and Their Patients," taken from the *Pacific Dental Gazette* of San Francisco. In a letter received from Dr. Edward C. Kirk, editor of the *Dental Cosmos*, is mentioned this fact: "I know of no work; in fact there is no work published in the English language on the subject of dental

ethics." There is a work entitled "*Code de Chirurgien Dentiste par Roger et Lodon—1898.*

The attention that has been given to ethics in most of the dental colleges has exerted such meagre influence in many instances that a great deficiency is manifest in the ethical deportment of some of their graduates.

Dr. Roy, of New York, read before the General Assembly of the Third International Dental Congress, an elaborate exposé of dental education, making many very able suggestions relative to that subject, and gave evidence of considerable observation both in Europe and America. He spoke of the best methods of organization of dental schools, the hours of duration and regulation of study, the number of years necessary to the study of the various branches of dental science, but in all his valued essay you will find there is but little or nothing said of dental ethics.

The question suggests itself, why this seeming indifference and want of attention to ethical study? I should answer, because of the accepted but sadly mistaken impression that every person presuming to exercise a profession should be or is per se an ethically cultivated person.

If the philosophy of our rules of ethics were more diffused among the institutions of dental education, it would surely be conducive of more congeniality and good fellowship and refining influences of an elevating character, from which professional gentlemen could not descend.

To be ethical is not to practice the rule of ethical deportment so much, however, in what you do, as in what you should be. It is ethical philosophy when we study laws and reasons that should prompt our actions toward society. It is ethical sentiment when we "do unto others as we wish they should do unto us."

The essence of such ethical philosophy is the impression made upon a community of the honor and integrity of a gentleman. It was the qualification of ethical art that created in the minds of the members of the American Dental Association, at their Sixth Annual Session, our present code of dental ethics, I believe in 1847.

The doctrine of morality in dental ethics embodies the correct exercise of conscientious principles, honor, truth and equity. It is preferable to be looked upon by society as morally truthful, kind and conscientious than to be considered merely elegant in person and of seductive manners.

In the enjoyment of moral influences in professional ethics, there is but one of all professions whose members have a place above the dentist. That is the physician. He is the most honored and confidential friend of society. To him are known the most vital confidences and privacies of the family circle. In him reposes the care of body and life. He should be the ethical example to all phases of society. Next to him in such confi-

dences is the family dentist. Thus are you given an example and consequently a proper appreciation of the necessity of rules for the ethical practice of a profession.

Before entering into the literal definition of ethics, and analyzing the rule of our present code of dental ethics, I beg you to understand that my reasonings are purely from a sense of personal observation, there being no works or definite statutes to consult.

The course of reasoning upon the proper requirements of a profession, either legal, medical or dental, creates in the logical brain the necessity of a system of rules for the proper and honest exercise of its rights and privileges, its profits and protection, and the obligations due to society and from society to the profession. Therefore I hope not alone to edify the students of the New Orleans College of Dentistry, but to engage the attention of your able professors as well to a sense of their interest and create among them an activity that shall lead to some successful debate upon broader views now necessary in the study of ethics in dental colleges and some necessary abrogation of the present dental code.

**Ethics Defined.** The accepted definition of ethics is the art of the moral philosophy which teaches to men duty; a system of rules and principles of duty; the moral philosophy which teaches to men their duty to society and to themselves. All conditions of refined social life are governed by ethical rule. It is therefore apparent that there is a vast comprehension in ethical rule which I will endeavor to explain in its relation to the practice of dentistry.

The Code of Dental Ethics, adopted by the American Dental Association, is comprehended in four distinct articles, each article divided into sections as follows:

Article I has three sections pertaining to the duties of the dentist to his patients.

Article 2 has five sections which you will please notice is the most elaborate, as it relates to the duty of maintaining professional character.

Article 3 is the relative duties of the dentist and physician.  
Article 4, the mutual duties of the dental profession and the public.  
I will respectfully beg your attention only at this time to the first few  
sections of Article 5 and Article 6.

sections of Article 1 and Article 2.

The first paragraph of Article 1 reads:

"The dentist should be ever ready to respond to the *wants* of his patient." We should be mindful here not to accept the term, *wants*, however, in its literal sense, because their wants, as patients often express themselves, are evidence of their ignorance of the true necessities. Their wants are rather to be interpreted to them by the dentist in a plain and

affable manner, yet conscientiously professional, being at the same time very attentive to their requests; all answers should be measured, and one should guard against any expression of criticism or comparison of other dentists' services.

**Office Requirements.** A dental office should contain all the conveniences of comfort and privacy, free from any display of gorgeous furnishings, which are often embarrassing to some, and apt to convey the idea of extravagance in charges to others.

A dental office and reception rooms should bespeak the proper appreciation the dentist entertains for the economy of time and his patron's comforts. There should be an absence of any display of implements or instruments to terrorize and intimidate, nor any signs, charts or anatomical maps and prepared human skulls, as such objects are repulsive to some. There should be a scrupulously cleanly appearance and condition of the entire office. Appearances and furnishings often depict the general tastes and character of the proprietor.

The first impressions made upon the patient has much influence favorable or unfavorable; the dentist at this moment is closely scrutinized and his manners and language particularly noticed. This is the trying moment, when the dentist should read his patient and thus determine the proper course to pursue.

If the dentist observes that the patient is intelligently appreciative, it may be well to explain the treatment and condition as found necessary, being careful, however, not to tire the patient with too much talk and consequent loss of time. If, unfortunately, the patient should be unappreciative, yet seemingly presumptuous in his false wisdom, firmness and self reliance should be manifest in the dentist, making the patient feel that time is money—being strictly business.

A good impression made at first sight is often the most indellible. Even if the physiognomy of the dentist is not very prepossessing, the inherent qualities of a gentleman will be manifest. The immortal Henry Clay was a very homely man of face or figure, tall and ungraceful, yet at the same time he was the personification of dignity, elegance and grandeur. It must be observed in connection with the exercise of these requirements that a proper distinction should be observed between what constitutes true elegance of manner of professional deportment, and in what might be construed into, or considered, self-importance, arrogance, haughtiness or bombastic dudeism. Simplicity of manner is true elegance, as it is far from ethical to evince a manner of self conceit.

To the second article I particularly call your attention, as it pertains to the maintenance of professional character. The ethical rule or rules

of professional honor comprehended in this article are the fundamental principles of dental ethics.

Section III. reads: "It is unprofessional to resort to public advertisements, cards, hand bills, posters, signs, or calling attention to different kinds of work, lowness of prices, special modes of operating or to claim superiority over neighboring practitioners, or to publish reports of cases, or any certificates in public prints, to go from house to house to solicit or perform operations, to circulate or recommend nostrums, or to perform any other similar acts."

Section V. reads: "When general rules shall have been adopted by members of the profession, practicing in the same locality, in relation to fees, it is unprofessional and dishonorable (please notice the word dishonorable) to depart from these rules, except when variations of circumstances require it, and it is even to be regarded as unprofessional to warrant operations or work as an inducement to patronage."

Gentlemen, you are to meditate upon these requirements and educate yourselves to a compliance as near as circumstances will possibly allow you to do. You will then realize the necessity of an early culture of habits and manners that will enable you to practice dentistry as such ethical rules call for.

It is a generally admitted fact that we are all selfish beings, envious or covetous (more or less) not alone in matters of social life, but in all modes and manners of occupations, trades or professions, not only to gain the necessities of support, but abundance, above each other. An estimable confrère said to me, in speaking of professional and social standing: "It is a hard thing to keep out of the ruts." The true character of man, even when naturally just and noble, requires culture and refinement in order to comply with the demands today of true ethical deportment, therefore compelling many acts of self denial and sacrifices.

The Constitution of the United States is an instrument so wisely framed, so honorable, just and comprehensive, that it has been productive of much national grandeur. Yet the immense increasing extent of territory and consequently imperative demands for protection, the almost incredible increase of population and extended commerce, has today brought about the question: "Is that sacred instrument sufficient to meet the exigencies and requirements of this country today?"

In like manner I may ask you young gentlemen does Section III. especially answer the requirements of a just and ethical practice of the dental profession today? Surely, in point of honest integrity it is complete, but as says the French truism, "*Autre temps. Autre mœurs.*"

Our country grows older; differences appear in social classes; the

gulf between the classes widens and differences of ethical requirements are more generally recognized. So far back as 1892 we find in an excellent essay by Gilbert S. Dean, D.D.S., read before the San Francisco Dental Society, the discussion of abrogation of the code of dental ethics.

It is now left to you and the rising and aspiring youths of the dental profession to legislate some means and measures for abrogating and revising a code of dental ethics to be in consonant keeping with the vast increase and consequent demands for protection of dental practice and professional character, as well as the confidence and safety of the public.

This is your heritage, to begin where your seniors left off, not to rest with the idea of letting well enough alone, but to battle for a just and consonant standard of dental ethics, such as the exigencies of today require. Well-directed endeavors animated by a love for pre-eminence will accomplish success. This is an era of progress, of intellectual, scientific and practical advancement, of broader thinking, and consequently demands are made for latitude and a broader comprehensiveness of ethical rules.

**Journalism.** An article from the *International Dental Journal* by Dr. Morgan Howe, of New York, entitled "Professional Dignity," says:

"There is much to be desired in ethical progress." The Doctor's intention, as I understand, is to establish a distinction in the adherence to ethical rules that legitimately defines the difference we should make between scientific and moral progress and in resisting all mercenary influences inconsistent and antagonistic to ethical and professional dignity. He says: "The commercial control of dental literature is demoralizing." Dr. C. N. Peirce, of New York, also says such is true, and admits that a commercial spirit is an important factor today in dental journalism as well as in dental practice; also that medical literature is equally under trade control.

Therefore, it is evident that dental journalism, as well as dental practice, is becoming imbued with a spirit of profit and gain that renders it antagonistic to ethical methods, ethical education and all ethical rules. This being admitted, surely then there is most urgent necessity for protection which calls for greater latitude in ethical rules that today govern dental practice, rules more consonant with the advancement in methods and facilities of practice; a dental code more expansively generous and of increased importance in the curriculum of dental colleges.



## Central Dental Society of Northern New Jersey—March Meeting.

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The regular meeting of the Central Dental Association of Northern New Jersey was held at Davis's parlors, Newark, N. J., on Tuesday evening, March 19, 1901.

President Gregory called the meeting to order after the usual preliminaries. L. Greenbaum, M.D., D.D.S., of Philadelphia, then read a paper entitled "Anæsthetics from a Dental Standpoint."

### Discussion of Dr. Greenbaum's Paper.

The wonderful nineteenth century has gone  
**Dr. C. S. Stockton.** into the tomb of the past, and its epitaph is invention, discovery, progress.

Its steam is the fulcrum that moves the universe. Its electricity turns its wheels. Its telegraph brings the news of the round world to our breakfast tables. Its telephone enables us to speak with our friends thousands of miles away. Its harvesters and mills feed the hungry, its sewing machines clothe the naked. The surgeon's knife takes us apart and puts us together again, better perhaps than we were. The only thing wanted to bring joy and happiness to humanity was anæsthesia, and this great boon was found and gives a foretaste of that time when there shall be "no more sickness, neither shall there be any more pain." How much of the unspeakable horrors of life have been mitigated, and the primeval curse upon Mother Eve in mercy assuaged.

But the wished-for boon was found. What King Lemuel says of wine is true of ether and chloroform and nitrous oxide; "Let him drink and forget his poverty and remember his misery no more." There is so much pain in this world for which there can be no narcotic or opiate—that we bless God and man for anæsthesia, and enshrine it in our heart of hearts.

Not perhaps in the spirit of broad philanthropy, yet it is just pleasant to say that we are a little proud that the discoverer of this great boon to humanity was one of our fellow craftsmen, Dr. Horace Wells, a dentist of Hartford, Conn.

I once used a good deal of nitrous oxide gas

**Dr. R. Ottolengui.** and the very first paper I ever wrote, which by the way was read before this Society, was on the subject of anesthesia. One statement of the essayist is at variance with my own experience. He speaks of nitrous oxide as not being particularly useful excepting for brief operations. At one time my office was opposite that of a surgeon who made a specialty of the treatment of hemorrhoids and it was a very common occurrence for me to administer nitrous oxide gas to his patients for the removal of hemorrhoids and sometimes for a much more painful operation, the stretching of the rectal sphincter. I have kept a patient unconscious, or apparently unconscious, to pain during operations which have lasted three-quarters of an hour. Of course such an operation is quite different from operating in the mouth, since the apparatus could be kept over the mouth continually. My practice was a very simple one. I had an inhaler with which I could shut off the gas. I would keep it over the mouth until cyanosis appeared and then shut off the nitrous oxide and allow the patient to breathe air until the cyanosis disappeared, when I would turn on the nitrous oxide gas again.

The essayist alludes to the fact that there was in a magazine (and he meant *ITEMS OF INTEREST*) a very laudatory article concerning chlorethane and he says that nevertheless chlorethane is practically worthless. I do not recall the article but the policy of our magazine can be stated very simply: We do not allow any advertising matter of any kind to get into the reading pages; at the same time we do not care how much advertising a drug or a drug house obtains provided we are giving information to our readers. The value of the information is to be decided by the readers. I think there was more than one article about chlorethane and I know they came from reputable practitioners. We published them as the individual experiences of the writers.

For many years during my early professional

**Dr. B. F. Luckey.** life I gave anesthesia, generally nitrous oxide, occasionally chloroform and ether. The younger I was and the less I knew of it, the more satisfaction I found in the administration, but the more experience taught me and the more money I accumulated from the mutilating and brutalizing of my patients, the nearer I approached that point where I thought it was time to stop, and

presently the time came when I finally shut the door of my anæsthetic cabinet and abandoned my gas apparatus entirely. Since then my health has been better and my nerves stronger. I have found more satisfaction in the use of local anæsthetics during the last five or six years than I have in any other branch of dental practice. It first dawned upon me with the use of bromide of ethyl, which I thought at the time was the acme of all that we could desire. I used it persistently and continuously with satisfaction to myself and patients. I removed pulps, prepared cavities and extracted teeth. As my experience grew and widened other things came to my attention. I tried cocaine when it was first discovered. The first lot of one ounce brought to our town was divided equally between an eye specialist and myself. He achieved good results but my success was negative. I hesitated, halted and stopped for a time and then we began to hear from other investigators the results of their work and presently I learned to use vapocaine. I was very nervous with it at first. I began carefully and cautiously to use it and the more I used it the more I liked it and the less evil results I seemed to have until finally I became fully convinced I had the thing I was looking for and have used it from that time to this. I have not excluded bromide of ethyl from my list entirely, but after vapocaine was put upon the market I found that if a man would take time and care in its use he could accomplish results that were impossible before its introduction; that it was much pleasanter, permitted less pain and was more rapid in its results than cataphoresis. Cataphoresis from the start did not appeal to me and possibly that is the reason I did not have as successful results as some others. The use of vapocaine enables me to work practically painlessly upon many cavities which had usually given the greatest trouble by reason of the pain caused the patient. It enables me to perform operations more rapidly than I had ever been able to before.

I cannot say much on this subject except to en-

**Dr. W. G. Chase.** dorse what the essayist has said. His experience with cocaine and chlorethane has been similar to that

of my own. I had read something about the wonderful things that chlorethane would do, when it first appeared, and I naturally looked into the subject to find out whether they were true. I had a sample given to me with instructions how to make a solution; I tried my best to make one and failed and I gave it to a friend of mine who is a chemist. He tried and afterwards told me it was utterly impossible, and the consequence is the sample is somewhere about the office and I have never used it. In my earlier days I used nitrous oxide, in the extraction of teeth, with considerable success and I have used it for operations by surgeons. We can prolong the anæsthesia a great deal better when we

are operating on some part other than the mouth. I do not think it is practicable to use nitrous oxide in the treatment of cavities, for filling, nor indeed any other drug except cocaine. I have had, and still continue to have, success with cocaine. I extract but very few teeth, but when I do I generally use a weak solution of cocaine and that successfully. I have also had success with cocaine in preparing sensitive cavities and I do not think that at the present time we have any drug that can quite take its place.

The difficulty with cocaine is that it has been used carelessly. Too large a percentage of the drug has been given and too large a quantity. A friend of mine borrowed my hypodermic syringe the other day, saying that he wished to use it in the extraction of the pulp of a tooth which was exposed and hanging. He said he intended to inject the cocaine into the gum of the patient and remove that pulp without pain. I said I did not believe he could do it, but he came back to my office in half an hour and said he had done it. But for all that I do not believe it, for I do not see how that cocaine penetrated through the bony tissue surrounding the tooth sufficiently to anæsthetize the nerve so that he could take the pulp out without pain.

I have had cases where boys playing football have had teeth broken where by simply touching the parts with a little carbolic acid and taking a piece of rosewood shaved down fine and giving it a quick touch with the stick the pulps would come out without pain.

Dr. Luckey's experience is similar to that of all

**Dr. C. A. Meeker.** of us who have been in practice many years. I know when I was younger and we had to make our own nitrous oxide, which probably was not at all correct chemically, we gave it and extracted teeth and had no fear; but the older I grew the more fear I had and now I do not use it.

I do not know how I could get along without three local anæsthetics, orthoform, cocaine and vapocaine, and I would like to add to that pyrozone, not as an anæsthetic.

Only this afternoon a patient came in with a Logan crown which had come off. I looked at the root and saw it was split. I had a very little time to spare and the patient wanted to go away, as she lived out of town, but it looked like a rather long operation. However, I had my cocaine and my pyrozone. I applied twenty-five per cent pyrozone first; then I took a little piece of gold band, measured the broken root as nearly as I could and fitted the gold band on the root; then I took a piece of cotton with pyrozone on it and stopped the hemorrhage. Then I applied vapocaine and asked the patient if it hurt, and she said "No." I mixed up some cement and put on some chloroform and rosin; that

dried the mucous tissues and I put the cement in and told her she could go. That whole operation took me about ten minutes. I could not have done that without pyrozone and vapocaine in that length of time; I would have had to take an impression, band the root and put the crown on at another time, and yet I did all that in not over twelve minutes.

I do not know how I could get along without orthoform, which is an anæsthetic dressing for the gum. If I have a hemorrhage from the gum I put the orthoform on first, then the pyrozone to stop the hemorrhage, which is done without any pain.

Dr. Luckey has mentioned in his usual happy

**Dr. W. P. Richards.** way something in regard to vapocaine. I have used it in my practice with some success and have had failures, and I would like Dr. Luckey to give us his method of using it. In the case of a very sensitive tooth with partially exposed pulp, how do you use it?

Simply as a local application. If I am using it

**Dr. B. F. Luckey.** on the gum tissue I am careful not to dry it off too quickly. Undue dryness will interfere somewhat with the operation of the vapocaine. In obtunding the sensitiveness of the dentine we want it as dry as possible, for the drier you get it the quicker you have the result. In the case of an exposed pulp some convenient substance should be first used as a non-conductor and then one should go on gradually until there is a complete exhibition of the cocaine upon the affected part, freely and directly. A rubber dam makes it all the better. If you want a complete absence of pain it is a matter of from five to fifteen minutes, according to the patient. I have removed pulps with the use of vapocaine, though it may have been the patient was of a temperament that did not respond readily to pain. I have had such patients. A lady who has been a patient of mine for perhaps eighteen or twenty years tells me it is a relief and a pleasure to have her teeth operated upon, and she finds the same sense of gratification that some people do when the hairdresser goes over the scalp and uses bay rum. She is sincere in her expressions and has had all kinds of dental operations performed upon her teeth and I have never seen her exhibit anything but the keenest pleasure. In one instance I was performing an operation which ordinarily would cause intense pain and I asked her if it hurt her and she said it did not. I saw a tear on her cheek and asked her what that meant. "Why," she exclaimed, "am I crying? I didn't know I was crying. I did feel peculiar, but it didn't hurt me." This woman is perhaps forty-five years old and has never been sick in her life. She had a headache one morning after having been at a ball over-

night and decided to stay in bed and be sick that day. She stood it for half an hour, became restless and got up, and that was the end of it.

I also know a gentleman some fifty-three years of age who was a patient of old Dr. Jenks, and it seemed to him to be the height of pleasure to have teeth extracted and I told him that I would like to handle him; I would give him pleasure! A few years ago he came to me with a badly swollen jaw and a tooth which either had to be treated or extracted. It proved afterwards that it had an enlarged root. He decided to have it extracted and I yanked and pulled away at it and at last it broke off and I was disgusted. He spat in the spittoon and said, "There does not seem to be much blood." I replied, "No, I guess we did not go deep enough." I took a pair of alveolar forceps and pulled and slashed away at it for five or ten minutes and finally got the whole of it out. I asked him how he felt and reminded him of my remark of years ago. He said: "It has not been so bad, although I cannot say it has been as much fun as some things I have had done."

I only mention this to show that all people are not alike. You might take the nerves of the lady and gentleman of whom I have spoken and put them under the microscope and compare them with the nerves of any other person and see no difference. But there is a difference in the response, and in the interpretation of the individual; some interpret the sense as pleasure, but the majority as pain, and I believe the latter are right.

I am not as old as some of the others in the

**Dr. H. S. Sutphen.** room and yet I have come to the same conclusion concerning general anæsthesia. I am almost afraid to use it, and, as some of you know very well, when a case presents itself that requires extraction by anæsthesia I generally send it to another man.

With local anæsthetics I do a little, now and then, and I rely pretty closely upon cocaine.

I said in the beginning that the object of my

**Dr. Greenbaum.** paper was simply to speak of the limitations of nitrous oxide and the usefulness of cocaine, in dental practice, and incidentally referred to two cases which illustrated my point.

Although Dr. Ottolengui was able to anæsthetize patients for hemorrhoids, yet I restricted my remarks on the use of nitrous oxide to dental purposes.

I regret to see that the gentlemen in general do not favor general anæsthesia, because I believe there is no agent as safe as nitrous oxide. You cannot kill with it even if you try. I have known it carried to that

point where respiration was absolutely stopped, yet the patient recovered with perfect ease. It requires a special condition, indeed, for nitrous oxide to create any bad effects.

Another point I will touch upon is whether it is better to use the oxide pure or mixed with air. I think it should be used in its ordinary pure form. As a mixture, although useful under certain conditions, it does not give good results when used in ordinary cases, because of the disagreeable after effects, and with a man of a good, healthy physique it is difficult to obtain a condition of full anæsthesia.

The majority of dentists seem to use local anæsthetics and I am glad to see that most of them use cocaine. Those who have had bad effects will acknowledge they only occurred in the early days, when it was not properly prepared, and that bears out my statement that it was not due to the action of the drug itself, and that when we had it in the old form disintegration occurred more readily. When the drug is properly prepared you will get good results. It makes no difference how you use cocaine, whether as vapocaine or with cataphoresis or in any other form.

One object of my paper was to point out that the substitute anæsthetics, as such, do not seem to answer. You and I are familiar with the fact that many of the local anæsthetics that have been foisted on the market are merely artificial substances supposed to chemically resemble cocaine in some respects, but I have never known any agent to have the same effect cocaine has upon the nerve structure.

The object of my paper was to point out the usefulness of cocaine and the great field we have in the use of nitrous oxide when used in a pure state and without any mixture, although, unfortunately, we cannot operate when the inhaler is kept in contact.

I recognize, however, that gentlemen frequently obtain good results with other agents and that they sometimes become, in consequence of that, enthusiasts over that other agent.

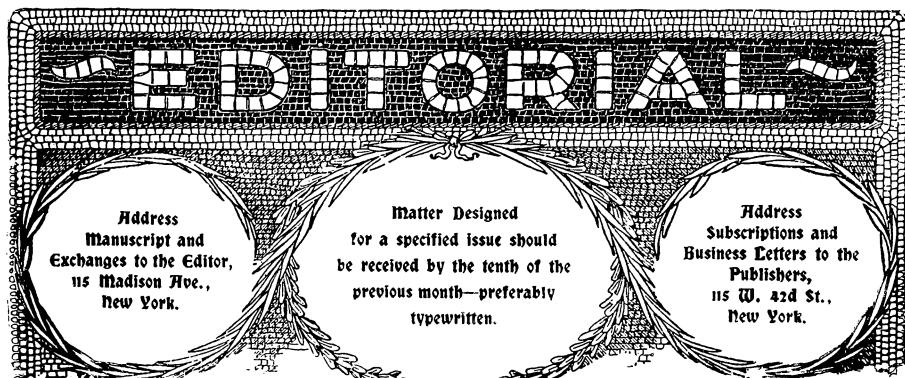
I by no means meant to reflect upon the journal which published the articles referred to, because I recognize that the editor is not responsible for what his authors write. The magazine is in the field for the purpose of supplying information to the profession, and the editor accepts articles from men in good standing, and these articles were all written by men in good standing, so you see I meant no reflection on the journal.

To refer again to the fact that occasionally almost any substance will give satisfaction, which can be explained on the ground of mind influence, I will remind you that it is a familiar fact that if water is injected into the veins some effect will be felt, partly from the pressure of the injecting liquid and partly because the patient knows something has been

done to relieve pain, and if the patient be an impressionable one the effect will be so great as to make the operation painless.

To illustrate this I will tell you of an experience which occurred at the dental college. One of the students was in the extracting room when a big, stout, nervous woman came in to have her tooth extracted and insisted that something should be given her to prevent pain. The student had nothing to give her and it was a very simple case, but he went to a friend and asked him if he had anything that could be used and his friend found some pills in his pocket which he had for hemorrhoids and gave two of them to the student. The student administered them to the patient who swallowed them and the tooth was then extracted perfectly painlessly!





## Dentistry and Debtors.

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A great deal of so-called dental legislation has been enacted, a critical analysis of which will show that the statutes are inherently for the benefit of the community, dentists themselves profiting merely in a sentimental way, because the restrictions of the acts tend to an elevation of the status of the profession as a whole, and, consequently, to an increased respect of the individual by his clientele. There is a direction, however, in which legislation might be sought, which would be to the interest of the dentist himself.

By the present methods of professional business management, it is an exceedingly easy thing for persons so inclined to obtain dental services and disregard the obligations of payment. In the commercial world, when the transaction is not on a cash basis, credit is usually extended only after a thorough investigation of the trustworthiness of the parties seeking to obtain goods or services without immediate payment. It is quite contrariwise with the professional man. A prospective client enters his office, presents an introduction from some other patient and, with little further investigation, the dentist proceeds to do the work asked, the bill being presented at the completion of all that may be required to place the mouth in a thoroughly healthy condition.

Even when dealing with perfectly honest people, this entails a long period of credit, frequently covering several months, because the patient may be unable to come frequently, or, perhaps because the dentist may not be able to give appointments very close together. Thus if a bill were rendered immediately after the last sitting, the patient would have already enjoyed credit since the insertion of the first filling. Under these circumstances, the honest man settles promptly, but what of the dishonest man?

There is a class of people who fully understand the general methods of business in a dental office, and who do not hesitate to obtain the services of a dentist, requiring the very best work, and probably exacting appointments absolutely at their own most convenient hours, yet who never, from the very outset, have the least intention of settling when the bill is presented. Is it too much to ask for some kind of legislation which will protect the dentist from this class?

It may be argued that dentists are men and not children, and should be able to protect themselves, but every dentist who reads these lines, however manful he may consider himself, will probably silently admit that he has many times been victimized in the manner described. Hotel keepers should be equally able with dentists to protect themselves, and yet the Penal Code of the State of New York contains a clause which makes it a misdemeanor for anyone to defraud a hotel keeper for the price of his bed and board. Why may we not ask for similar protection from the law, when we consider the extent of legislation which has been enacted in order to compel the dentist, before practicing to prove that he is competent to render skilled services? Then why should not the prospective patient be competent to pay for such services before being permitted to ask for and receive the same?

It is not intended that such an act, if passed, should apply to honest debtors. We all have patients who, perhaps, have paid their bills for years, but who finally have met misfortune and open accounts against them remain on our books: but it would be a wholesome state of affairs were it a misdemeanor for a man to come into a dental office, ask for and receive skilful dental services and ignore the bill.



Questions will be answered in this department, provided the answers would be of general interest. After publication our readers are cordially invited to make further reply, criticism or comment.

The last sessions of the various State Legislatures have given to the country several new laws, or else revisions of the old statutes. In all cases the trend is upward and for higher standards. Not much, however, as yet, has been accomplished in the way of unification though progress has been made in the direction of interchange of license between States. In regard to the new law of California, Dr. King writes as follows:

**California Dental Law.** "Between the new act regulating the practice of dentistry in the State of California, approved March 23 of this year, and the old law of 1885, there is such a marked difference that a comparison of their several sections is almost out of the question.

"The position which was held by California in the list of States engaged in raising the status of the profession within their boundaries, was, in consequence of the old act, not an enviable one, despite the repeated efforts of the many reputable practitioners who endeavored to better it. The new law, while it does not represent all that its advocates desire, yet is looked upon as the means of creating a sentiment which, when the time comes for its amendment, will prove invaluable.

"Among the changes noted is that section regulating the course of study, and providing a literary qualification for those candidates not possessing a diploma; a radical change from the old act. It will be noted that all candidates will have to be examined whether holding a diploma or not.

"A section provides for those who make use of degrees and certificates to which they are not entitled, and also takes notice of the practice of selling diplomas, the penalty in the latter case being severe.

"Besides these changes, there are many new features in the law, which is the work of a committee chosen by the State Dental Association, and its faithful observance and application will give to California licenses, the recognition by other State Boards, which it should enjoy.

"It goes into effect September 1, 1901."

**New Jersey  
Dental Law.**

The new law of the State of New Jersey, approved March 22, 1901, provides for the examination and granting of licenses in the following manner:

6. Said board shall register as licensed dentists, and under its seal and the hand of its president and secretary, issue to all persons who shall successfully pass said examination, its license to practice dentistry in this State; the board may also, without the examination herein above provided for, issue its license to any applicant therefor who shall furnish proof satisfactory to it that he has been duly licensed after examination to practice dentistry in any State after full compliance with the requirement of its dental laws; provided, however, that his professional education shall not be less than that required in this State; every license so given shall state upon its face the grounds upon which it is granted, and the applicant may be required to furnish his proof upon affidavit; the fee for such license shall be twenty-five dollars.

3. Section eight of said act is hereby amended to read as follows:

8. This act shall not be construed to prohibit an unlicensed person from performing mechanical work upon inert matter in a dental office or laboratory; or to prohibit the registered student of a licensed dentist from assisting his preceptor in dental operations while in his presence and under his direct and immediate personal supervision; or to prohibit a duly licensed physician from treating the diseases of the mouth or performing operations in oral surgery; nothing in the provisions of this act shall be construed to permit the performance of dental operations by any unlicensed person under cover of the name of a registered practitioner; any person now registered as a student may present himself for examination to the board upon complying with the provisions of this act relative to examination, and presenting to the board a certificate, under oath from the dentist or dentists with whom he has studied, that such applicant has studied as a student with the dentist or dentists so certifying for not less than five years continuously; provided, however, such applicant shall have filed, on or before the first day of June, 1898, a notice with the board that it is his purpose to avail himself of the exemption hereby made; the board may, however, at any time, upon proof of the violation of any of the provisions of this act by such student, re-

voke his right to present himself for and pass such examination; any person shall be regarded as practicing dentistry within the meaning of this act who shall use the words "doctor of dental surgery," "doctor of dental medicine," or the letters "D. D. S." or "D. M. D." in connection with his or her name, or any other title intended to imply or designate him or her as a practitioner in dentistry in all of its branches, and who, in connection with such title or titles, or without the use of such titles, shall practice dentistry in any of its branches; and it is further provided, that the use of any one of the aforementioned titles or the exposition of a sign, circular, advertisement or any other device or information indicating thereby the occupation of the person or persons, shall be taken and considered in the trial of any indictment which may be found for the violation of any of the provisions of this act, or in the trial of any civil action for penalties under the provisions of this act, as *prima facie* evidence.

4. This act shall take effect immediately.

Approved March 22, 1901.

**Dental Law  
of  
South Dakota**

The new dental law of South Dakota gave the following regulations in regard to the practice of dentistry:

Sec. 4. Certificate of Registration—Fee.—It shall be the duty of each person licensed by the board to practice dentistry in this State to procure from the secretary of the board, on or before July 1 annually, a certificate of registration. Such certificate shall be issued by the secretary upon the payment of a fee to be fixed by the board, not exceeding the sum of two dollars. All certificates so issued shall be *prima facie* evidence of the right of the holder to practice dentistry in this State, during the time for which they were issued. Any certificate or license granted by the board may be revoked by it upon conviction of the party holding it of a violation of any of the provisions of this act. Every person receiving such certificate shall conspicuously expose the same in his place of business.

Sec. 5. Examination and Qualification of Practitioners.—Any person desiring to begin the practice of dentistry in this State must, in order to be eligible for examination, furnish to the board satisfactory evidence that he has been engaged in the active practice of dentistry for at least three years immediately preceding such examination, or that he has pursued the study of dentistry in the office or under the supervision of a regular practicing dentist for such a period. He shall be examined by the board with reference to his knowledge and skill in dentistry, and if upon such examination such person is found in the judgment of the State Board to possess suitable qualifications to practice dentistry, and if the board is satisfied that the applicant has a good moral character, it shall issue to such applicant a license to practice dentistry in accordance with the provisions of this act: Provided, that any person desiring to commence the practice of dentistry in this State and having a diploma issued by a reputable dental college or dental department at any university, shall, in person, present the same to the State Board of Examiners, and

the board, being satisfied as to the genuineness of the diploma, may, without examination issue a license to such person, to practice dentistry in this State on payment of the license fee hereinafter provided for. All licenses issued by the board shall be signed by the several members thereof, and be attested by its president and secretary under the seal of the board.

Sec. 6. Who Regarded as Practicing Dentistry.—A person shall be deemed to be practicing dentistry, within the meaning of this act who shall perform operations, or parts of operations of any kind, or treat diseases or lesions of the human tooth or jaw or correct malposition thereof. But nothing in this article contained shall be so construed as to apply to acts of bona fide students of dentistry done in the pursuit of clinical advantages under the direct supervision of a preceptor or a licensed dentist in this State during the period of their enrollment in a dental college and attendance upon a regular course in such college, or to prevent any legally qualified resident physician and surgeon from extracting teeth, or to prevent any person from using any domestic remedy or other means for the relief of pain.

Sec. 7. Fee for Examination—Annual Reports, Etc.—The Board of Dental Examiners may require each person applying to it for examination to pay a fee not exceeding ten dollars, which shall in no case be returned.

If the applicant shall receive a license to practice he shall thereupon pay the further sum of five dollars which shall also entitle him to receive a certificate of registration for the current or registration year in which such license is issued. Thereafter he shall annually obtain a certificate as hereinbefore provided. Out of the funds received by the board each member may be paid the sum of five dollars for each day actually engaged in the duties of his office and all legitimate and necessary expenses incurred in attending the meetings of said board. Such expenses shall be paid from the fees received by the board under the provisions of this act, and no part of the salary or other expenses of the board, excepting the printing of the annual report, shall be paid out of the State Treasury. All moneys remaining after the payment of such per diem allowance and other legitimate and necessary expenses as above provided for, shall be held by the secretary as a special fund for defraying the expenses of the board in carrying out the provisions of this act. The secretary shall give a bond in such a sum and with such conditions as the board may from time to time direct. The board shall make an annual report of its proceedings on or before the 15th day of November in each year, which report shall contain an account of all moneys received and disbursed by the board during the preceding year.

Sec. 8. Temporary Certificate.—Any two members of said board may issue a temporary certificate to any applicant upon the presentation of such applicant of the evidence of the necessary qualifications to practice dentistry, and such temporary certificate shall remain in force until the next regular meeting of said board occurring after the date of such temporary certificate, and no longer. But one temporary certificate shall ever be issued to the same applicant.

**Dental Law  
of  
Connecticut.**

The new dental law of Connecticut gives the following regulations in regard to the practice of dentistry in the State:

Sec. 10. No person, unless he had already commenced the practice of dentistry in this State prior to June, 1893, and was engaged in said practice on said date, shall practice dentistry in any town in this State, unless he shall have first obtained from said Board of Dental Commissioners a license therefor; provided, however, that if the applicant shall have graduated from, or received a diploma or other sufficient certificate of honorable graduation from some reputable dental college or medical college having a department in dentistry, and duly recognized by the State or States wherein the same is situated; such last-mentioned applicant shall pay to the recorder a fee of ten dollars, and if he shall fail to obtain his license, five dollars shall be returned to him, but every other applicant for a license shall, at the time of his application, pay to the recorder a fee of twenty-five dollars, and if such applicant shall fail to obtain his license twenty dollars shall be returned to him.

Sec. 12. All applications for such license shall be in writing and signed by the applicant, and no license shall be issued to any person unless he shall have received a diploma, or other sufficient certificate of honorable graduation from some reputable dental or other college having a department in dentistry, and duly recognized by the laws of the State, or States wherein the same is situated, unless he shall have spent as a pupil or assistant at least three years under the instruction and direction of some reputable dentist, or unless he shall have had at least three years' continuous practice as a dentist, which fact must be shown to said commissioners by sufficient evidence.

Sec. 14. Every applicant for a license shall be examined by said commissioners as to his professional knowledge and skill, before such license shall be granted, and they may refuse to grant a license where they are satisfied that the applicant is unfit or incompetent, and they may for good and legal cause revoke any license that has been granted, and may prohibit any dentist in lawful practice from further practice on satisfactory proof that such dentist is unfit or incompetent. Any applicant for a license who, before his application therefor shall have been duly licensed to practice dentistry in any of the United States (or District of Columbia) whose law provides for an examination by a dental commission, before such license may be issued, may be licensed in this State by the Board of Dental Commissioners, without further examination by them as to his professional knowledge and skill, whenever in the opinion of the board an examination on these two points is unnecessary to enable them to judge of the fitness and competency of such applicant.



## Bau und Topographie des Alveolarfortsatzes im Oberkiefer.

Von DR. RUDOLF LOOS,

Assistant am Zahnärztlichen Institut der K. K. Universität in Wien.

Mit 10 Tafeln und 4 Figuren in Texte.

ALFRED HÖLDER, Wien, 1900.

This volume upon the "Structure and Topography of the Alveolar Processes of the Upper Jaw," by Dr. Rudolf Loos, of 99 large octavo pages and 10 excellent photo-produced plates illustrating the relation of the teeth to the alveolar processes of the upper jaw, is a work of merit.

It is in line with many recent publications, records of original research undertaken with a view to assist students in acquiring accurate ideas of local anatomical conditions. Its usefulness is not, however, confined to the classroom. It is a handy volume to the practitioner, medical, surgical, or dental, who may desire to refresh his memory. The plates representing sections through the bony structures are especially valuable. They have been photographed from carefully prepared specimens, and show graphically the relation of the various structures. They do more than merely illustrate the text; they serve to bring forcefully to the mind of the reader and there fix the writer's teachings far better than would the products of an expert draughtsman. The work is well written, and is of special interest to the dentist in its bearing upon the mechanics of antral and tooth-root disease and tooth extraction.

Incidentally, it illustrates the advances made in descriptive anatomy in that these one hundred pages are judiciously devoted to a single topic that would have been considered fully treated a few years ago in half as many lines.

W. H. T.

## The Semi-Centennial of Surgical Anaesthesia—October 16, 1846; October 16, 1896.

Boston, Massachusetts, General Hospital, 1897.

This volume, a fitting companion to that noticed in *ITEMS OF INTEREST*, February, 1901, page 152, is the record of a meeting of physicians and surgeons, held at the Massachusetts General Hospital, October 16, 1896, to appropriately commemorate the first public demonstration of surgical anaesthesia. These two volumes, records of meetings commemorating respectively the discovery of anaesthesia by Dr. Horace Wells, and the first successful public demonstration of its value in surgical operations by Dr. W. T. G. Morton, are interesting historic memorials. The first was by the dental profession, to whom the anaesthetic properties of nitrous oxide gas have been so great a boon. The suggestion to utilize previously recognized properties of nitrous oxide gas came to Dr. Wells as an inspiration. He discovered its practical value, and proved to the world that the long cherished dream of painless surgery was a possibility. That sensibility could be quickly extinguished and held in abeyance at will without injury to the individual was a great discovery, the honor of which belongs to Dr. Wells. The discovery of means and methods to accomplish this with that certainty and profoundness required in long and serious surgical operations, and thus make the possibility of real practical value was reserved for Dr. Morton.

The discovery of anaesthesia, beyond a very limited circle, was barren of results until on the 16th of October, 1846, in the surgical amphitheatre of the Massachusetts General Hospital, Dr. Morton demonstrated its practicability; then, quickly as the news could spread, it became a recognized necessity throughout the civilized world.

Dividing the honors of this great discovery, since the lapse of more than half a century has stilled the clamor of the contestants and has eliminated its commercial importance, may be impartially done.

The historian has at hand, in accessible form, all the evidence. He is able to trace step by step, from the first crude efforts recorded in early medical writings, the persistent search for means to mitigate the horrors and the agonies of surgical operations until it culminated, on the 16th of October, 1846, in the public demonstration by Dr. Morton of the wonderful and profound physiological impress produced by inhaling vaporized sulphuric ether.

We dismiss as valueless in this connection all that is recorded of the narcotic effects of drugs, the marvels claimed for incantations, charms, mesmerism and the like, the vague suggestions now and again recorded that in the light of the present approached so near and yet missed the mark, and the experiences and experiments of which the world knew nothing until they ceased to be of interest.

The world is indebted to anæsthesia to two men, both of whom were dentists, Dr. Horace Wells and Dr. W. G. Morton. They, in common with all thoughtful practitioners, having to deal with human suffering, were anxiously looking for something that promised to lighten their labors and relieve the distress of the sufferers. Dr. Wells, as by an inspiration, was led to test for this purpose nitrous oxide gas. The extraction of his tooth by Dr. John M. Riggs, at Hartford, Conn., December 11, 1844, was, beyond doubt, the first successful surgical operation under what is known as an anæsthetic condition. It was the first step toward that which the work under review commemorates, and fully justifies the bronze tablet erected a few years ago to mark the spot where it took place. Dr. Wells was not a scientist; he was not a chemist; he had no knowledge of the agent he used, and failed to investigate as fully as he should the phenomena he had so profitably observed. Others had suggested what might be done; he went a step further and demonstrated what could be done; he failed, however, to make his discovery practicable. He soon found that while nitrous oxide gas was capable of producing the desired insensibility to pain quickly and harmlessly, and that minor surgical operations could be painlessly performed under its influence, it was troublesome to prepare and uncertain in its action. His first attempt to publicly demonstrate its value was a discouraging failure—a failure due, it is now believed, to Dr. Wells's inexperience in its administration. He was dealing with a condition entirely new, with an agent whose peculiarities he had not studied, and was in the presence of an unsympathetic audience. He had made a great discovery, but failed to make that discovery of use to the world. We now know that nitrous oxide is an anæsthetic; that as an anæsthetic it has a place all its own. We also know that such a scene as that which attended Dr. Wells's unfortunate exploit is by no means an uncommon associate of successful nitrous oxide anæsthesia.

He retired from the field discouraged and disheartened. So complete was his failure to properly appreciate the greatness of his discovery that he made no effort to extend its usefulness, nor to study the conditions determining its success or failure. Dr. Wells ceased to experiment with it; indeed, left the profession for a more congenial vocation. Of those to whom it became known, one only, an intimate friend of Dr.

Wells, Dr. W. T. G. Morton, grasped its possibilities. He knew from his intimacy with Dr. Wells what had been accomplished and of the difficulties met. He became interested in the subject, and with earnestness and zeal began a careful study of agents having like properties with nitrous oxide, and eventually found in sulphuric ether an agent well suited to his needs. It was this careful preparation which gave him the confidence with which he faced as unsympathetic an audience as that which had previously greeted Dr. Wells. It enabled him to maintain under trying circumstances that mental equipoise which the occasion demanded.

The illustration fronting the "Reminiscences of 1846," by Dr. Robert T. Davis, page 19, of the book under review, representing the First Public Demonstration of Surgical Anæsthesia, will be recognized for all time, and justly so, as depicting the advent of surgical anæsthesia. Dr. Warren's exclamation on completing the operation, "Gentlemen, this is no humbug," was the first announcement to the world that the long search was happily ended. With that event the name of Dr. W. T. G. Morton is inseparably associated. While he did not discover anæsthesia, he took hold of it when it was discarded and useless, appreciated rightly its value, and by his own efforts made it a boon to humanity.

The meeting was held October 16, 1896, at the Massachusetts General Hospital, Boston, in the same building within which the event took place fifty years before, and was under the auspices of the trustees of the medical staff.

The exercises opened with an address of welcome by Mr. Charles H. Dalton, president of the hospital.

This was followed by a series of short addresses, entitled as follows: "Reminiscences of 1846," by Dr. Robert T. Davis, of Fall River, one of the few still living who witnessed Dr. Morton's public demonstration; "Surgery Before the Days of Anæsthesia," by Dr. John Ashurst, of Philadelphia; "What has Anæsthesia Done for Surgery?" by Dr. David W. Cheever, of Boston; "Relation of Anæsthesia and Obstetrics," by Dr. John Reynolds, of Boston; "The Influence of Anæsthesia Upon Medical Science," by Dr. W. H. Welch, of Baltimore; "The Surgery of the Future," by Dr. Charles McBurney, of New York; "The Birth and Death of Pain," a poem by Dr. S. Weir Mitchell, of Philadelphia. The exercises concluded with a short address by Lord Playfair upon the advent of anæsthesia in England.

The volume closes with the hospital record of its first anæsthesia case, and a number of letters from invited guests.

The addresses are all excellent and appropriate to the occasion. It is illustrated by a view of the hospital building as it was in 1846-7, a

portrait of Dr. J. C. Warren, the surgeon who operated; a view of the surgical theater during the event (reproduced in *ITEMS OF INTEREST*, Vol. xix., September, 1897, page 650), and a portrait of Dr. Morton.

The volume is a credit to all concerned in its production. The character and tone of all the remarks are in excellent taste. The title of the commemoration, "The First Public Demonstration of Surgical Anæsthesia," seems to have been closely observed, and all allusion to matters of controversy were carefully avoided.

W. H. T.





# MEMORIAM

## Nelson W. Williams.

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Dr. Nelson W. Williams, born at West Liberty, Logan County, Ohio, October 23, 1834. Died at Nice, France, May 5, 1901.

Dr. Williams commenced the study of dentistry with Dr. Harris, of West Liberty, Ohio, about 1855. During the succeeding five years he diligently prepared himself to enter the Ohio College of Dental Surgery, which he did in 1860. After taking one course he started practice at West Liberty, dividing his time between that place and Kenton, Ohio. After two years of practice he returned to college, whence he graduated in 1863. Shortly after this he entered into partnership with Drs. Jonathan Taft and George Watt, of Xenia, O.

In 1871 he was invited to enter the practice of Dr. Slayton, Sr., of Florence, Italy. This he accepted, going there in 1872, but after a year's stay in Florence, he decided to go to Geneva, Switzerland, where he bought out the practice of Dr. George W. Field, now of London. After several years of hard work his health failed, and he had to go to the Riviera to recuperate. Finding he could not endure the rigors of the Swiss winters, he decided to dispose of his Geneva practice, and locate at Nice, where he practiced until his death. He was a member of the Ohio State Dental Society and the Mad River Dental Society, from both of which he received a specially gratifying testimonial upon his leaving Ohio for Europe. While at Geneva he was one of the five founders of The American Dental Society of Europe, and while failing health of late years had prevented his regular attendance at its meetings, he always had a warm place in his heart for its welfare and success, as was testified by his cheery letter read at its last meeting at Cologne. As a matter of history it may be interesting to note that Drs. Watt and Williams were the first to make crystal gold in the United States, and Dr. Williams was the one to introduce it to the profession in Europe, and he also showed his lamented friend, Dr. de Trey, of Vevey, how to produce it, the outcome of which is the solila gold of today.

Dr. Williams was the pioneer of American dentistry on the Riviera, and those who had a close acquaintance with him will sadly miss his kindly genial greeting, and will join with the wife and daughters, who now mourn the loss of husband and father, in bowing to the stern fate that deprives them of a dear good friend, and our profession of one of its pioneers and most skilful and conscientious representatives.

He was laid to rest in the French Cemetery at Cancade, near Nice, in the presence of a great concourse of sorrowing friends, and all the members of the French Dental Society of the Riviera.

R. I. P.

### Zachary T. Sailer.

Dr. Zachary T. Sailer, of No. 55 West 71st street, New York City, is no more. He died Sunday morning, June 16, at his home, after a comparatively short illness at the age of 55 years; he leaves a widow, who was Miss Rose Duffy, of New York, and one daughter. He was a progressive, wideawake and successful dentist; he was born in Mount Holly, New Jersey, and after spending a number of years in the employ of the Camden and Amboy Railroad, went to New York, and becoming interested in dentistry took up its studies and graduated from the New York College of Dentistry with the class of 1879. He lived and practiced for many years on West 33d street. He took a deep interest in everything pertaining to his profession, and invented a number of useful appliances; that in which he took the greatest pride were a hot water box for use at the chair. With it he heated his gutta percha, modelling compound for crowns, and water for sterilizing instruments. Another ingenious contrivance was a tongue depressor and napkin holder; for he was one of the men who used little rubber dam; he believed in napkins, soft gold and diamond points.

Dr. Sailer was a member of the Stomatological Institute, Odontological Society and Alumni Association of the New York College of Dentistry. He was for many years and up to the time of his death treasurer of the latter society.

He was also a Pastmaster of Manhattan Lodge No. 62, F. and A. M., and a member of the Colonial Club.

He was a good dentist and a better friend; he will be missed.  
Peace to his ashes.

B. F. L.

## **Resolutions by the American Dental Society of Europe.**

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Whereas, We, the members of the American Dental Society of Europe have heard with deep regret of the death of our distinguished colleague, Dr. Theodore Emmanuel Lecaudey, therefore

Resolved, That by this sad event our profession has lost one of its most revered members, whose fame belonged not only to his own country, but which was also the prized possession of the civilized world.

Resolved, That we offer to his afflicted family the assurances of our respectful sympathy.

W. E. ROYCE,  
N. S. JENKINS,  
W. R. PATTON.

## **Resolutions of Respect to Dr. Theodore F. Chupein.**

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At a regular meeting of the Pennsylvania Association of Dental Surgeons, held Tuesday evening, April 9, 1901, the Committee on Resolutions upon the death of Dr. Theodore F. Chupein submitted the following, which were accepted and adopted:

Whereas, With profound regret the Pennsylvania Association of Dental Surgeons is called upon to notice the death of Dr. Theodore F. Chupein, an old, tried and faithful member, it is meet and fitting that it should place on record its appreciation of his long and faithful services as a member, and of his far-reaching, earnest, and valued services to the profession he loved.

Dr. Chupein became a member of the association September 13, 1876, and at once, with earnestness, took, and has continued to take, with unflagging zeal an active part in all its work. He was elected recording secretary October 9, 1877, and by re-election continued to serve until his death, March 23, 1901.

His earnestness in professional work, his faithfulness as a member and officer of this association, his manliness and his friendliness well merits our most profound appreciation and respect.

Be it therefore

Resolved, That by the death of Dr. Theodore F. Chupein the dental profession has lost an earnest and progressive member, and this society a firm and fast friend.

Resolved, That, bowing in humble submission to the will of Him who doeth all things well, we hereby express our heartfelt sympathy to his bereaved wife and family; and be it further

Resolved, That a copy of these resolutions be transmitted to his family and published in the dental journals.

WILBUR F. LITCH,  
WILLIAM H. TRUEMAN,  
Committee.

J. CLARENCE SALVAS, Secretary.

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### **Resolutions on the Death of Dr. A. C. Hart, Adopted by the Oakland Dental Club, June 5, 1901.**

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The Oakland Dental Club desire to express their great sorrow and deep regret at the untimely death of Dr. A. C. Hart of San Francisco. The sudden ending of this life freighted with so much promise comes as a calamity to the dental profession at large, and fills every member of the club with a profound sense of personal loss. The ending of a life which has run the due course of time attached to man in this world, and which has been filled with the largest measure of usefulness to humanity, may be looked upon as a benediction, but our friend who has been so suddenly removed from earthly environment was but upon the threshold of a career which has not only already enriched science, but gave vigorous promise of much larger contribution from his continued research, together with the added power of a maturer mind, and we cannot, therefore, but grieve at the abrupt termination of a life so auspiciously begun. Be it, therefore,

Resolved, That in the death of Dr. Hart the dental profession has lost one of its ablest, keenest and most energetic investigators.

Second—That his ardent, self-sacrificing experiments with the microscope has added much to the scientific knowledge of pathological condition of the oral cavity.

Third—That his splendid reputation has been earned by careful, conscientious and painstaking effort coupled with an honest purpose to do his best.

Fourth—That we place a high estimate on his professional ability and personal worth, together with the works he has already accomplished through his assiduous labor for the dental profession.

Fifth—That these resolutions become a part of the records of this club, and that a copy of the same suitably prepared be presented to Mrs. Hart.

WALTER F. LEWIS,  
R. W. MEEK,  
E. C. TIMERMAN.  
Committee.

### **Resolutions on the Death of Dr. F. B. Smith, of Stowe, Vt.**

Whereas, Dr. F. B. Smith, of Stowe, Vt., having been removed by death since our last annual meeting, it becomes our painful duty to take notice of his demise,

Therefore be it resolved as the sense of this society that the profession has lost a distinguished member. Although only an honorary member of our society for a short period, he became well known, respected and admired. Let us, therefore, linger for a moment to pay his memory this tribute of respect.

Resolved, That a copy of these resolutions be sent to his family.

K. L. CLEAVES,  
W. H. MUNSELL,  
R. H. NEWTON.  
Committee.

### **Resolutions on the Death of Dr. W. H. Spencer, of Rutland.**

Again the shadow of death has been cast over this society by the untimely demise of Dr. W. H. Spencer, of Rutland.

While we bow in humble submission to the Divine will, we feel that in the death of Dr. Spencer this society loses one of its most active members, a former president, a genial companion, a pleasant associate.

And we tender to his bereaved family our sincere sympathy.

We recommend that these resolutions be spread on our records, a copy be sent to his family and to the local papers for publication.

E. E. McGOVERN,  
L. E. MELLEN,  
R. M. CHASE,  
Committee.

## Resolutions on the Death of Dr. W. George Beers, of Montreal.

Whereas, it has been the will of our Heavenly Father to remove our esteemed and beloved brother and associate, Dr. W. Geo. Beers, of Montreal, from this earthly abode.

The Vermont State Dental Society has lost one of its most beloved and genial honorary members, who was always active and constant. His presence among us has always been an inspiration, but if prevented from being present in person at our meetings we always felt that he was present in spirit.

The profession at large has met with an irreparable loss, as he was ever ready to contribute largely to the advancement of his profession, and as editor of the *Dominion Dental Journal* he has greatly elevated and successfully advanced our profession.

We deem it highly proper at this time to give expression to our great appreciation and friendship, and our sadness and bereavement makes us sincere in extending sympathy to the relatives and friends.

While bowing to the inevitable we cannot refrain from giving expression to our sorrow and remorse that he should be removed from us.

Resolved, That a copy of these resolutions be sent to the afflicted family, and also preserved upon the memorial page of this society.

E. O. BLANCHARD,  
G. F. CHENEY,  
G. O. MITCHELL,  
Committee.

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## Resolutions on the Death of Dr. George W. Hoffman, of White River Junction.

Whereas, having learned with profound sorrow of the sudden death of Dr. George W. Hoffman, who for sixteen years was a firm friend and an esteemed member of this society, one of its ex-presidents, and the State Prosecutor for a long period, we would place on record our sense of the loss which we and the profession have sustained.

Resolved, That while we bow to the inscrutable Providence which has so early removed him from the scene of earthly labor, we appreciate the many noble qualities he possessed and displayed as a man and a practitioner.

He was an ornament to our profession, and one whose presence and counsel will be greatly missed from the annual meetings of our society.

As a citizen he displayed public spirit and manifested a kindly interest in the welfare of his fellow men, and enjoyed the esteem of the community where his life work was done.

He was a genial and companionable brother, energetic, courageous and prompt to act wherever duty called. We shall ever cherish with grateful remembrance his worthy services, and find therein an example worthy of emulation.

Resolved, That to the bereaved family we extend our sincere sympathy in their great loss, and commend them to the care of the all merciful Father.

Resolved, That a copy of these resolutions be spread upon the records and transmitted to the family.

W. H. WRIGHT,  
J. A. ROBINSON,  
J. A. PEARSONS,  
Committee.

### **Horatio Gates Hall.**

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At his residence, in Piqua, Ohio, Dr. Horatio Gates Hall died May 23, 1901, of Bright's disease, aged seventy-one years. Dr. Hall was one of the best known dentists in Western Ohio. He had been actively engaged in the practice of dentistry for forty-six years. He was an honorable, genial, and Christian gentleman, and one whose acquaintance and friendship was well worth seeking. He leaves a wife, two daughters and two sons, and is the first of four brothers, all dentists, to be claimed by death. He will be greatly missed.





## National Society Meetings.

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- National Dental Association, Milwaukee, Wis., August 6.
  - National Association of Dental Examiners, Milwaukee, Wis., August 2.
  - National Association of Dental Faculties, Milwaukee, Wis., August 1.
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## State Society Meetings.

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- California State Dental Association, Los Angeles, July 9, 10, 11, 12.
- Colorado State Dental Association, Denver, July 9, 10, 11.
- District of Columbia Dental Society, Washington, December.
- Maine Dental Society, Old Orchard Beach, July 16, 17, 18.
- Minnesota State Dental Association, Duluth, July 30, 31. August 1.
- Mississippi Dental Association, Yazoo City, August 1, 2, 3.
- Missouri State Dental Association, Sedalia, July 9, 10, 11, 12.
- New Jersey State Dental Society, Asbury Park, July 17, 18, 19.
- Ohio State Dental Society, Columbus, December 3, 4, 5.
- Tennessee State Dental Association, Nashville, July 29.
- Virginia State Dental Association, Natural Bridge, August 1, 2, 3.
- West Virginia State Dental Society, Mannington, August 29, 30.

## National Dental Association.

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The fourth annual meeting of the National Dental Association will be held in Milwaukee, Wis., commencing Tuesday, August 6, continuing four days. The Masonic Temple Hall, which is conveniently located

and especially suited to the various needs of association, has been secured.

Special railroad rates have been secured.

All regularly organized dental associations are entitled to one delegate for each ten members, and these associations are urged to send full delegations.

Dr. G. V. I. Brown, of Milwaukee, chairman of the local committee, will engage rooms at the hotels and answer questions regarding local arrangements.

G. V. BLACK, President.

J. D. PATTERSON, Chairman Executive Committee.

A. H. PECK, Secretary.

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### Railroad Rates to the National.

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The profession from the Eastern section who expect to attend any or all of the National meetings at Milwaukee in August are requested to at once send their names to Dr. H. J. Burkhart, of Batavia, N. Y. It is expected that a rate war between the railroads will be on at that time, of which advantage will be taken. An arrangement can be made for a stop of several days at the Pan-American Exposition at Buffalo on the return trip.

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### New Jersey State Dental Society.

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The thirty-first annual session of the New Jersey State Dental Society will be held in the Auditorium, Asbury Park, N. J., commencing Wednesday, July 17, 10 a. m., and continuing in session Thursday and Friday.

The "Columbia" adjoining will be the headquarters, with rates of \$2.50 and \$3 per day.

To the busy practitioner who desires to witness the latest and best in clinical dentistry—"come." Sixty clinics.

The best and newest efforts in the science of dentistry—come and hear fine papers read. For a veritable museum of the latest in electrical appliances, mechanical tools, the chairs, instruments and accessories of the modern dental office. Come and see us and mark the days off now. The time will not be wasted; you will see the contents of not only one

dental depot but of all the country. The best of the inventions pertaining to our profession up to date. The city dentist as well as the one from the cross roads can all see and learn something.

The programme is as follows:

### Papers.

- 1.—President's Address: Dr. F. Edsall Riley, Newark, N. J.
- 2.—“The Relation of the Chemical Action to the Chemical Constitution of Certain Modern Anaesthetics.” “The Relation of the Chemical Constitution to the Physiological Action of Modern Antiseptics (Formaldehyde).” Wolfram E. Doreyfus, B.A., Ph.D., Columbia University, N. Y.
- 3.—“A Study of Acids Occurring in the Mouth.” H. H. Boom, M.D., Philadelphia, Pa.
- 4.—“Painless Dentistry.” W. St. George Elliott, D.D.S., New York.
- 5.—“Soldering Made Easy.” H. W. Northrop, D.D.S., New York.
- 6.—“Porcelain Fillings After Twelve Years.” W. A. Capon, D.D.S., Philadelphia, Pa.
- 7.—“A System of Retaining Springs for Partial Plates and Bridges.” W. E. Griswold, D.D.S., Denver, Col.

### List of Clinics, Thursday, July 18, 2 P. M.

1. Dr. M. R. Grinkman, Hackensack, N. J. Cleft Palate with Models, Dies, etc., showing method of making an artificial velum.
2. Dr. Robert Good, Chicago, Ill. Pyorrhoea. Porcelain Bridge Work.
3. Dr. J. Austin Dunn, Chicago, Ill. Subject to be announced.
4. Dr. T. D. Shumway, Plymouth, Mass. Tin and gold filling.
5. Dr. P. Holme Morrison, St. Louis, Mo. Removable Root Canal Filling Where Gold or Silver Wire is Used.
6. Dr. Marvin L. Hanaford, 308-9 Masonic Temple, Rockford, Ill. Subject to be announced.
7. Dr. P. A. Pennington, 233 West Chestnut St., Louisville, Ky. Soft Gold Filling.
8. Dr. Wm. D. Tracy, 46 West Thirty-seventh St., New York city. The Ivory Matrix in Connection with the Insertion of an Alloy Filling in a Compound Cavity.
9. Dr. E. H. Allen, Freeport, Ill. Porcelain crown. Setting with Gutta Percha.
10. Dr. J. O. Brown, 500-100 State St., Chicago, Ill. Contour Filling with Watt's Crystal Gold in Anterior Tooth.

11. Dr. W. E. Griswold, Denver, Col. Removable Bridge Work, with Models and Drawings, making Practical Case for the Mouth.
12. Dr. Jos. Head, Philadelphia, Pa. Porcelain Inlay.
13. Dr. J. W. Moffit, Philadelphia, Pa. Improved Process of Continuous Gum Work. Block Work.
14. Dr. S. Eldred Gilbert, Philadelphia, Pa. Subject to be announced.
15. Dr. J. A. Bolard, Philadelphia, Pa. Subject to be announced.
16. Dr. G. S. Junkerman, 231 West Court St., Cincinnati, O.
17. Dr. J. R. Clayton, Shelbyville, Ind. Filling with Soft Gold Cylinders. Filling with Tin and Gold.
18. Dr. Howard J. Hill, Alma, Neb. Subject to be announced.
19. Dr. F. Ewing Roach, Suite 902-3 Champlain Building, Chicago, Ill. Subject to be announced.
20. Dr. Lee K. Stewart, Reliance Building, Chicago, Ill. Porcelain Work.
21. Dr. Frank J. Robertson, Jr., Wilbur, Neb. Subject to be announced.
22. Dr. Robert E. Payne, 68 West Thirty-fifth St., New York city. Implantation.
23. Dr. C. W. Jones, Germanic Life Building, St. Paul, Minn.
24. Dr. Robert Roessler, Hoboken, N. J. Aluminum Nose.
25. Dr. Paul W. Hiller, 231 West Forty-second St., New York city. Prosthesis and Orthodontia.
26. Dr. Frederick B. Keppy, 62 Hancock St., Brooklyn, N. Y. Subject to be announced.
27. Dr. William E. Halsey, 131 Milton St., Brooklyn, N. Y. Restoration of Molar Root with Amalgam. Filling Large Compound Cavity in Bicuspid with Amalgam.
28. Dr. H. Clay Ferris, 1166 Dean St., Brooklyn, N. Y. Filling With Moss Fibre Gold.
29. Dr. Samuel L. Goldsmith, 129 East Sixtieth St., New York city. Subject to be announced.
30. Dr. Louis C. LeRoy, 6 Lexington Ave., New York city. Subject to be announced.
31. Dr. Walter Woolsey, Elizabeth, N. J. Gold Filling Using Marshall Pneumatic Mallet.
32. Dr. T. Naylor Bradfield, Newark, N. J. New Method for Seamless Gold Crowns.
33. Dr. Jos. E. Duffield, Camden, N. J. Painless Extirpation of Dental Pulp With Cocaine Under Pressure.
34. Dr. F. A. Peeso, Philadelphia, Pa. Crown and Bridge Work.

35. Dr. H. C. McBriar, Middletown, N. Y. Porcelain Inlay Using McBriar Furnace.
36. Dr. L. S. Ayres, New Brighton, N. Y. Gold Filling with Moss Fibre Gold.
37. Dr. Henry McManus, Hartford, Conn. Models of Inlays with Swaged and Burnished Matrices. Painted Inlays.
38. Dr. T. Takashima, Newark, N. J. Art Work in Plaster and Metal.
39. Dr. William C. Deane, 114 East Sixtieth St., New York city. Porcelain Inlays.
40. Dr. Perry R. Skinner, Amsterdam, N. Y. New Form of Lower Plates—Combination of Rubber and Gold. New Form for Clasp for Teeth.
41. Dr. A. Irwin, Camden, N. J. Method of Napkining the Mouth, Using Johnson & Johnson's Aseptic Napkins.
42. Dr. Andrea Cassavo, Ponce, Porto Rico. The Use of Soft Foil in Molar Cavities.
43. Dr. Pitrous Melen, Marseilles, France. New Steam Pressure Apparatus for Working Celluloid.
44. Dr. Horace J. Gould, Brooklyn, N. Y. Practical Baking of Continuous Gum Sets, Baking of Body and Enamel in Two Heatings, with Detroit Furnace.
45. Dr. L. F. Davis, Washington, D. C. Pinless Rubber Tooth for Practical Bridges.
46. Dr. W. W. Evans, Washington, D. C. Porcelain Bridges.
47. Dr. F. Leslie LeCron, Baltimore, Md. Upper and Lower Bridge Work.
48. Dr. W. W. Dunbracco, Baltimore, Md. Strengthening Root for Crowning and Preparing Badly Decayed Teeth for Filling.
49. Dr. J. C. Graft, Newark, N. J. Method of Riveting Facings to Bridge, with new instrument. New Removable Bridge.
50. Dr. N. M. Chitterling, Bloomfield, N. J. Restoring Badly Decayed and Broken Bicuspid and Molars with Pins and Bands.
51. Dr. W. Lloyd Morgan, East Orange, N. J. Subject to be announced.
52. Dr. H. B. Noble, Washington, D. C. Orthodontia Using Jackson Method.
53. Dr. Cyrus M. Gingrich, Baltimore, Md. Non-Cohesive Gold Fillings.
54. Dr. Frank G. Gregory, Newark, N. J. Improved Clamp for Cervical Cavities.
55. Dr. Charles A. Meeker, Newark, N. J. Use of Manufactured Porcelain Inlays in Superior and Inferior Molars. Crown Surfaces.

56. Dr. George L. Wilcox, 250 West Eleventh St., New York city. Demonstrating Use of Rowan's Platinized Gold.
  57. Dr. Ellison Hillyer, Brooklyn, N. Y. Subject to be announced.
  58. Dr. F. L. Fossume, New York city. Subject to be announced.
  59. Dr. H. P. Marshall, Newark, N. J. Subject to be announced.
  60. Dr. O. A. Glidden, 401 East Twenty-eighth St., New York city.
  61. Dr. William P. Richards, Orange, N. J. Aseptic Dental Absorbents and Napkins.
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### Tennessee Dental Association.

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The next meeting of the Tennessee Dental Association will be held jointly with the Southern Branch of the National Dental Association at Nashville, Tenn., beginning Monday, July 29. The profession is cordially invited to attend.

W. M. SLACK, President, Memphis, Tenn.  
A. SIDNEY PAGE, Secretary, Columbia, Tenn.

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### Vermont State Dental Society.

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At the twenty-fifth annual meeting of the Vermont State Dental Society, held at Montpelier, March 20, 22, the following officers were elected for the ensuing year: President, C. W. Steele, Barre; First Vice-President, J. A. Pearsons, Barton; Second Vice-President, J. H. Jackson, Burlington; Secretary, Thomas Mound, Rutland; Corresponding Secretary, Grace L. Bosworth, Rutland; Treasurer, W. H. Munsell, Wells River; State Prosecutor, J. A. Robinson, Morrisville.

Executive Committee: H. Burbridge, Woodstock; R. H. Newton, Montpelier; George F. Barber, Brattleboro.

It was voted to send the papers which were read to the *Dental Digest* for publication, and they instructed to send them to the ITEMS OF INTEREST for publication also.

The next meeting will be held at Rutland, Vt., the third Wednesday in March, 1902.

G. L. BOSWORTH, Secretary.

Rutland, Vt.

### Maine Board of Dental Examiners.

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A special meeting of the Maine Board of Dental Examiners will be held for examination of applicants in Portland, Monday, July 15, 1901, at 2 o'clock.

D. W. FELLOWS, M.D., Secretary.

Y. M. C. A. Building, Portland, Me.

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### West Virginia State Board of Dental Examiners.

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The West Virginia State Board of Dental Examiners will meet at the Jackson Hotel, in the city of Parkersburg, August 7, 8 and 9, for the examination of candidates. The examination will be in writing, and will cover all the branches taught in representative schools, together with operations in the mouth. Applicants for examination are required to furnish their own instruments and materials. Application blanks will be furnished to all those wishing to take the examination. Such blanks should be in the hands of the secretary not later than the 25th of July. Previous examination questions will not be furnished.

W. E. MINGHINI, Secretary.

Martinsburg, W. Va.

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### Chicago Dental Society.

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At the annual meeting of the Chicago Dental Society, held in Schiller Hall, Tuesday evening, April 2, the following officers were elected for the ensuing year: President, A. B. Clark; First Vice-President, Geo. B. Perry; Second Vice-President, B. D. Wikoff; Secretary, Elgin Ma Whinney; Corresponding Secretary, C. S. Bigelow; Treasurer, E. R. Carpenter; Librarian, H. W. Sale; member Board of Directors, J. G. Reid.

Board of Censors: W. V. B. Ames, Chairman; C. N. Johnson; A. W. Harlan.

92 State street, Chicago, Ill.

C. S. BIGELOW, Secretary.

## Illinois State Dental Society.

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Following is a list of officers and committees elected for the ensuing year at the last annual meeting of the Illinois State Dental Society: President, M. L. Hanaford, Rockford; Vice-President, J. E. Hinkins, Chicago; Secretary, A. H. Peck, 92 State Street, Chicago; Treasurer, C. N. Johnson, Chicago; Librarian, J. T. Cummins, Metropolis City; members of Executive Council, J. R. Rayburn, Fairbury; W. E. Holland, Jerseyville; J. G. Reid, Chicago; Executive Committee, J. W. Cormany, Mount Carroll. Publication Committee, A. H. Peck, Chicago; C. N. Johnson, Chicago; Edmond Noyes, Chicago. Board of Examiners, Edmond Noyes, Chicago, to succeed C. M. Robbins, term expired. Committee on Dental Science and Literature, G. V. Black, Chicago. Committee on Dental Art and Invention, H. J. Goslee, Chicago. Committee on Infraction of Code of Ethics, T. L. Gilmer, Chicago; A. S. Waltz, Decatur; O. L. Frazee, Springfield. Supervisor of Clinics, D. M. Gallie, Chicago. Committee on Local Arrangements, O. L. Frazee, Chairman, Springfield; assistants, E. F. Hazell, T. P. Donelan.

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## G. V. Black Dental Club.

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At the fourth annual meeting of the G. V. Black Dental Club of St. Paul, the following officers were elected: G. F. Andrews, president; Scipio Bond, vice-president; J. M. Walls, secretary and treasurer; J. E. Weirick, E. K. Wedelstaedt and W. N. Murray, Board of Censors.

J. M. WALLS, Secretary.

St. Paul, Minn.

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## New York State Dental Society.

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At the annual meeting of the New York State Dental Society, held at Albany, May 8 and 9, the following officers were elected for the ensuing year: President, J. I. Hart, New York; Vice-President, R. F. Hofheinz, Rochester; Secretary, W. A. White, Phelps; Treasurer, C. W. Stainton, Buffalo; Correspondent, H. D. Hatch, New York.

W. A. WHITE, Secretary.

Phelps, N. Y.

**New England Association of Dental Examiners.**

The fifth annual meeting and dinner of the New England Association of Dental Examiners was held on the evening of April 24 at the Algonquin Club in Boston. The object of the association is to provide a standard of examination for all the New England States, so that a dentist moving from one State may, under proper restrictions, practice in another.

Dr. Eugene H. Smith, dean of the dental department of Harvard, and Dr. Harold Williams, dean of Tufts' Dental College, were the guests of the evening.

Among the honorary members present were Dr. L. D. Shepard and Dr. Searl Hurlburt, formerly of the Massachusetts Board; Dr. C. A. Brackett, formerly of the Rhode Island Board, and Dr. A. B. Miller, formerly of the Maine Board.

The discussion was on the "Conduct of State Boards and Their Mutual Relations." All the New England State Boards were well represented.

The election of officers resulted as follows: Thomas J. Barrett, Worcester, Mass.; Vice-President, Dana W. Fellows, Portland, Me.; Recorder, George L. Parmele, Hartford, Conn. Chairman of Executive Committee, John F. Dowsley, Boston, Mass.

**American Dental Society of Europe.**

At the Easter meeting of the American Dental Society of Europe, held at Cologne, the following officers were elected: President, W. E. Royce, Tunbridge Wells, England; Vice-President, F. Foerster, Berlin, Germany; Hon. Treasurer, Wm. A. Spring, Dresden, Germany; Hon. Secretary, L. J. Mitchell, London, England.

The next meeting is to be held in Stockholm, Sweden, during August, 1902.

L. J. MITCHELL, Hon. Secretary.

London, W., England.